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VOL. 2 NOS. 1-4

January 1977

aSB 823

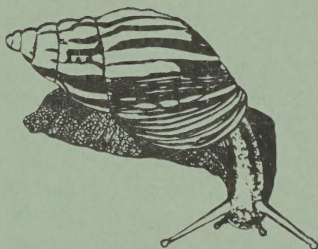
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Cooperative PLANT PEST REPORT

PROCUREMENT SECTION
CURRENT SERIAL RECORDS

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This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

Potential for severe CORN ROOTWORM problem on second-year corn in Wisconsin. (p. 3).

A WEEVIL most severe on avocado in Florida in 30 years. (p. 5).

Detection

- A DELPHACID PLANTHOPPER new to the United States was collected in Hawaii. (p. 11).

New State records include a SCOLYTID BEETLE in New Mexico (p. 7), a BRACONID WASP and a NYMPHALID BUTTERFLY in Hawaii (p. 11), and an ICHNEUMONID WASP in Connecticut (p. 25) and Vermont (p. 26).

For new county and island records, see pages 13-14.

New host records were reported for 3 SCALES and 2 MEALYBUGS in Alabama, and a WHITEFLY in Florida (p. 6), and in Hawaii (p. 12).

Special Reports

- Pest Detection in the United States - 1976. There were 16 new United States records and 59 new State records. (p. 17-23).

Surveys for Alfalfa Weevil Parasites during 1976. (p. 24-26).

First Report of Comperia merceti (Compere) in Wisconsin (Hymenoptera: Encyrtidae). (p. 27).

State Survey Coordinators. (p. 28-30).

Cooperative Survey Entomologists. (p. 31-34).

Reports in this issue are for the weeks ending December 11, 1976, through January 21, 1977, unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - TEXAS - Up to 0.2 per row foot of small grains in Wichita County January 13, 1977. (TX Coop. Rep.). OKLAHOMA - First larva of season; second instar on wheat in Payne County December 29, 1976. (OK Coop. Surv.).

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Up to 28 per 30 sweeps along west side in Imperial Valley week ending December 31, 1976. Treatment anticipated for late January with potential acreage of 23,000. Some natural reduction of adults with increase in other areas. Counts heavier than normal in San Joaquin Valley in 1976, but due to vegetation condition and warm weather, no population concentration occurred. Extra summer generation this past fall still found as nymphs and adults. Host plants beginning to show stress due to lack of moisture and to frosts. Treatment underway at Coalinga, Fresno County, week ending January 21. Total of 1,883 acres treated. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot of small grains by date and county: December 13, 1976, -- Archer, Baylor, Fisher, Knox, Wichita, and Wilbarger ranged 0-5; December 14-16 -- Parmer one; December 20 -- Archer, Baylor, Hardeman, Jones, Kent, and Wichita fewer than 5, Fisher up to 70 and mean of 25 in separate counts, and Wilbarger, averaged 15; January 3, 1977, -- Archer, Kent, Motley, Wichita, and Wilbarger up to 15; Fisher up to 250 in spots and averaged 10-140 in separate counts. Up to 5 per row foot of small grains in Archer, Cottle, Foard, Hardeman, Knox, and Motley Counties week ending December 17. Counts per row foot of small grains by county January 11: Archer, Baylor, Dickens, Fisher, Hardeman, and Wichita ranged 0-15; and Wilbarger, maximum of 125. (TX Coop. Rep.). OKLAHOMA - Greenbug counts per row foot by county week ending December 17, 1976. Southwest up to 5 on wheat, Payne averaged one, and Washita and Beckham ranged 0-7. Ranged 0-36 per row foot of wheat in Tillman, Kiowa, Jackson, Harmon, and Greer Counties week ending December 31. Highest single field average of 16 per row foot and overall average of 8 per row foot. Ranged 0-6 per row foot in fields in Washita and Beckham Counties. Ranged 0-5 (averaged 1.3) per row foot of wheat in Payne County week ending January 7. Ranged 0-2 per row foot of grazed wheat in Washita County week ending January 21. Up to 26 per row foot in one ungrazed field. (OK Coop. Surv.).

CORN, SORGHUM, SUGARCANE

INSECTS

EUROPEAN CORN BORER (Ostrinia nubilalis) - INDIANA - Of 238 live larvae dissected, 19 (8 percent) contained immature hymenopterous parasites (probably Eriborus terebrans) and one contained a dipterous parasite. The 8 percent figure is regarded as minimal due to long storage between collection and dissection resulting in mortality biased more toward the diseased and parasitized than toward the healthy. (Meyer).

CORN ROOTWORMS (*Diabrotica* spp.) - MICHIGAN - Adults surveyed in 126 corn fields in Sanilac County August of 1976. Adults 130 or more per 160 plants in 23 percent of fields that should be rotated or treated if planted to corn in 1977. This percentage probably good average for State. Fields with fewer than 130 adults per 160 plants averaged 27 adults per 160 plants. (Ruppel). WISCONSIN - Fall egg survey in 1976 showed 43 percent increase over number found in 1975. State average of 14.81 eggs per pint of soil, heaviest in 5 years; potential for severe rootworm problems in 1977 in fields of second-year corn. Control threshold at 5 or more eggs per pint of soil. Egg averages per pint of soil by district: Northwest 1.53, north-central 2.60, northeast 2.68, west-central 17.06, central 10.69, east-central 20.97, southwest 12.72, south-central 20.63, and southeast 13.42. (WI Pest Surv.).

SMALL GRAINS

INSECTS

HESSIAN FLY (*Mayetiola destructor*) - OKLAHOMA - Infested 17 of 22 fields of wheat in Garvin, Murray, and Stephens Counties week ending December 17, 1976. Infested average of 40 percent of plants in spots near Pauls Valley, Garvin County; some plants dead or dying. Larvae still in some fields and may not overwinter. Infested 11 of 12 early planted fields in Payne and Logan Counties; one field in Payne County heavily infested with some plants already dead. (OK Coop. Surv.).

AN APHID (*Rhopalosiphum padi*) - OKLAHOMA - Scattered on wheat in southwestern counties week ending December 24, 1976. Heaviest 25-30 per row foot in Harmon County. Ranged 0-15 (averaged 2.4) per row foot of wheat in Payne County week ending January 7. (OK Coop. Surv.).

WINTER GRAIN MITE (*Penthaleus major*) - CALIFORNIA - Adults and nymphs infested oats at Herald, Sacramento County, week ending December 17, 1976. (CA Pest Rep.). TEXAS - Counts in small grain fields by date and county: December 20, 1976, -- Knox increased and Wichita up to 54 per row foot; and January 3, 1977, -- Harde-man present. (TX Coop. Rep.). OKLAHOMA - Averaged 2 per row foot of wheat in Payne County week ending December 17, 1976. Averages up to 4 per row foot of wheat in Payne County week ending January 7. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (*Hypera postica*) - OKLAHOMA - First newly laid eggs of season 5-10 per square foot in alfalfa samples collected in Grady County December 15, 1976. Eggs 5-10 per square foot of alfalfa in Payne County December 17. Eggs 0-20 per square foot of alfalfa in Grady County January 19. (OK Coop. Surv.). INDIANA - Total of 26 alfalfa fields sampled in November and December 1976. Mean eggs per quarter foot of alfalfa by district: Northwest 11.6, west-central 3.7, central 11.2, east-central 2.3, southwest 3.5,

south-central 9.5, and southeast 6.7. Light egg counts may be due to light adult counts, unusually low fall temperatures, or unknown causes. Spring damage due to overwintered eggs in southern third of State should not be as heavy in 1977 as in 1976. (Meyer).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Increasing on alfalfa in Imperial Valley, Imperial County, week ending January 21. (CA Pest Rep.).

DECIDUOUS FRUITS AND NUTS

INSECTS

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - Adults heavy on peach at Live Oak, Sutter County, week ending January 7. Controls using winter oils questionable due to drought conditions. Some growers used alternatives. (CA Pest Rep.).

AN ARMORED SCALE (Lecanodiaspis prosopidis) - ALABAMA - Collected on Diospyros virginiana (common persimmon) at Lanett, Chambers County, October 2, 1976. Collected and determined by M.L. Williams. Collected on Diospyros virginiana (common persimmon) at Montgomery, Montgomery County, by C.H. Ray, October 28, 1976. Determined by M. L. Williams. These are new county records. (McQueen).

OTHER TROP. & SUBTROP. FRUITS

INSECTS

A WEEVIL (Heilipus apiatus (= squamosa)) - FLORIDA - Larvae heavy January 17; damaged plantings of young Persea americana (avocado) in Dade and Collier Counties. Most severe infestation of this weevil since the late 1940's. (FL Coop. Surv.).

ORNAMENTALS

INSECTS

A SOFT SCALE (Ceroplastes floridensis) - ALABAMA - Collected on Burford holly at Enterprise, Coffee County, by T.C. Casaday, August 26, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected (host unknown) at Montgomery, Montgomery County, by C.H. Ray, October 28, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

HEMISPHERICAL SCALE (Saissetia coffeae) - ALABAMA - Collected on Viburnum sp. at Semmes, Mobile County, by L.W. Lockhart and Goff, August 13, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - ALABAMA - Collected on Solidago sp. (goldenrod) in greenhouse at Auburn, Lee County, by C.H. Ray, September 27, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

AN ARMORED SCALE (Fiorinia theae) - ALABAMA - Collected on Ilex crenata (Japanese holly) at Geneva, Geneva County, by D. Carpenter, August 27, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ARMORED SCALE (Rhizaspidiotus dearnessi) - ALABAMA - Collected on Solidago sp. (goldenrod) at Eufaula, Barbour County, by B.J. Muse, September 9, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

FERN SCALE (Pinnaspis aspidistrae) - ALABAMA - Collected on Mondo sp. (lilyturf) at Auburn, Lee County, by J. Adams, September 10, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

CITRUS MEALYBUG (Planococcus citri) - ALABAMA - Collected on Aloe vera (true aloe) at Auburn, Lee County, by C.H. Ray, October 11, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

LONGTAILED MEALYBUG (Pseudococcus longispinus) - ALABAMA - Collected on Solidago sp. (goldenrod) in greenhouse at Auburn, Lee County, by C.H. Ray, September 27, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

A WHITEFLY (Aleurodicus dispersus) - FLORIDA - Larvae and pupae light on leaves of Laguncularia racemosa (white-mangrove) at Cape Florida, Key Biscayne, Leon County, December 16, 1976. Collected by F.G. Barker. Determined by A.B. Hamon. This is a new host record for State. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Damage heavy in 200-acre mature pine stand near Lanett, Chambers County, week ending December 16, 1976. About 25 percent of trees faded, red, or dead. Similar groups of affected pines in much of eastern edge of Lee and Chambers Counties along Chattahoochee River. Little leaf disease in the mostly shortleaf pines on the several 1,000 acres appears to be forerunner of problem as beetles move to these weaker trees. (Oakland, Barker, et al.). MISSISSIPPI - New infestation found on Pinus taeda (loblolly pine) in Tombigbee National Forest in Winston County week ending January 14. About 10 trees infested. Damage extensive. (Gammill).

A MEALYBUG (Dysmicoccus obesus) - ALABAMA - Collected on Pinus taeda (loblolly pine) at Tuskegee, Macon County, by C.H. Ray, November 2, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ERIOPHYID MITE (Platyphytoptus sabinianae) - CALIFORNIA - Heavy on Pinus sp.; infested needles, tips, and branches at Vacaville, Solano County, week ending December 24, 1976. Discolored needles on many pines in area. (CA Pest Rep.).

A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO - Collected from ornamental ash at Clovis, Curry County, by J. Durkin, July 15, 1975. Determined by S.L. Wood. This is a new State record. (NM Coop. Rep.).

A SCOLYTID BEETLE (Leperisinus aculeatus) - WISCONSIN - Collected on Marshall seedless green ash at La Crosse, La Crosse County, by M.S. Conrad, August 5, 1976. Determined by D.M. Anderson. This is a new county record. (WI Pest Surv.).

AN ARMORED SCALE (Diaspidiotus liquidambaris) - ALABAMA - Collected on Liquidambar styraciflua (American sweetgum) at Lanett, Chambers County, October 2, 1976. Collected and determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected on Callicarpa americana (French mulberry) at Lapine, Crenshaw County, by T. Seibels, September 22, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Very heavy in backs of cattle at Apache, Caddo County, week ending December 17, 1976. Grubs 0-56 (averaged 12.3) per head in herd of 108 beef cows and 0-14 (averaged 1.9) per head in second herd of 85 in Payne County. Averaged 6.3 per head on 76 untreated dairy cows in Payne County week ending January 14. Averaged 14.1 per head on 106 untreated pregnant beef cows, 5.8 per head on 60 untreated cows with fall calves, and 0.98 per head on 60 treated pregnant cows. Averaged 6.3 per head on 18 beef cows in Noble County. Few grubs dropped from backs to pupate. Continued heavy in cattle in Comanche County week ending January 21. (OK Coop. Surv.).

PIGEON FLY (Pseudolynchia canariensis) - CALIFORNIA - Found on pigeons at Stockton, San Joaquin County, week ending January 7, 1977. Infested almost all 100 pigeons. Collected by K. Brown and R. Greek, December 3, 1976. Determined by K. Brown. This is a new county record. (CA Pest Rep.).

HOUSEHOLDS AND STRUCTURES

INSECTS

AN AMBROSIA BEETLE (Xyleborus ferrugineus) - ALABAMA - Collected infesting wood in home at Geneva, Geneva County, by R.C. Reynolds, October 23, 1976. Determined by D.M. Anderson. This is a new county record. (Reynolds).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN ICHNEUMONID WASP (Bathyplectes anurus) - INDIANA - Following are new county records. Determinations based on parasitoid cocoons. Parasitized Hypera postica (alfalfa weevil) larvae reared on alfalfa and collected in these counties: Spencer at Mariah Hill

by R.W. Meyer on April 12, 1976, determined by H. Barlow; Dubois at Ferdinand by D.K. Morihara on April 20, determined by J. Stewart; Daviess at Plainville by R.W. Meyer on May 4, determined by P. Sutton. (Meyer).

AN ICHNEUMONID WASP (Bathyplectes curculionis) - INDIANA - New county records follow. Determinations based on parasitoid cocoons taken from Hypera postica (alfalfa weevil). Weevils collected by R.W. Meyer on dates given. (Meyer).

County	City	Date	Determiner
Randolph	Farmland	June 1973	R.W. Meyer
Gibson	near Mackey	Apr. 19, 1974	R.W. Meyer
Spencer	St. Meinrad	Apr. 20, 1974	R.W. Meyer
Ripley	Elrod	May 1, 1974	R.W. Meyer
Dubois	St. Henry	May 7, 1974	R.W. Meyer
Jennings	San Jacinto	May 9, 1974	R.W. Meyer
Union	Liberty	May 14, 1974	R.W. Meyer
Rush	Manila	May 15, 1974	R.W. Meyer
Shelby	Rays Crossing	May 15, 1974	R.W. Meyer
Grant	Point Isabel	May 3, 1976	J. Stewart
Fayette	Springersville	May 4, 1976	J. Stewart
Noble	Wawaka	May 19, 1976	H. Barlow
Clay	Prairie City	May 24, 1976	H. Barlow
Blackford	Hartford City	May 25, 1976	P. Sutton
Jay	Portland	May 25, 1976	P. Sutton

A BRACONID WASP (Microctonus aethiopoides) - OHIO - Reared from adult Hypera postica (alfalfa weevil) collected from alfalfa in 1976. Collected and determined by J.K. Flessel. Collections by county as follows: Morrow at Johnsville and Richland at Shelby on October 12, 1976; Ashland at Hayesville, Knox at Fredrickstown, and Mercer at Coldwater on October 29. All are new county records. (Lewis).

A BRACONID WASP (Opius dimidiatus) - FLORIDA - Mostly this species parasitized about 40 percent of active larvae of Liriomyza sativae (a leafminer fly) in celery at Zellwood, Orange County, January 6. (FL Coop. Surv.).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Collections from Tribulus terrestris (puncturevine) represent new county records. Adults and larvae collected 1975; larvae in 1976. (Bell).

County	Nearest City	Collector	Collection Date	Determiner
Stafford	St. John	K.O. Bell	Sept. 9, 1975	R.E. Warner
Harper	Harper	K.O. Bell	Sept. 10, 1975	R.E. Warner
Kingman	Cunningham	K.O. Bell	Sept. 10, 1975	K.O. Bell
Sumner	Mayfield	K.O. Bell	Sept. 10, 1975	K.O. Bell
Ellsworth	Black Wolf	K.O. Bell	Sept. 17, 1975	K.O. Bell
Stevens	Hugoton	M.L. Shuman	Sept. 19, 1975	K.O. Bell
Grant	Ulysses	M.L. Shuman	Sept. 22, 1975	K.O. Bell
Kiowa	Wellsford	G.A. Salsbury	Sept. 25, 1975	K.O. Bell
Gove	Gove	M.L. Shuman	Sept. 30, 1975	K.O. Bell
Lane	Dighton	M.L. Shuman	Sept. 30, 1975	K.O. Bell
Pawnee	Larned	E.F. Martinez	Aug. 27, 1976	E.F. Martinez

<u>County</u>	<u>Nearest</u>	<u>Collector</u>	<u>Collection</u>		<u>Determiner</u>
	<u>City</u>		<u>Date</u>		
Barton	Great Bend	E.F. Martinez	Aug. 27, 1976	E.F. Martinez	
Pratt	Cullison	E.F. Martinez	Sept. 10, 1976	E.F. Martinez	
Ness	Bazine	E.F. Martinez	Sept. 13, 1976	E.F. Martinez	
Rush	Rush Center	E.F. Martinez	Sept. 13, 1976	E.F. Martinez	
Trego	Trego Center	E.F. Martinez	Sept. 14, 1975	E.F. Martinez	
Lincoln	Vesper	E.F. Martinez	Sept. 15, 1975	E.F. Martinez	
Russell	Russell	E.F. Martinez	Sept. 15, 1975	E.F. Martinez	
Edwards	Trousdale	E.F. Martinez	Sept. 17, 1975	E.F. Martinez	
Ford	Spearville	E.F. Martinez	Sept. 17, 1975	E.F. Martinez	

A PUNCTUREVINE STEM WEEVIL (Microthrips lypriformis) - KANSAS - Collected from Tribulus terrestris (puncturevine) at St. John, Stafford County, by K.O. Bell, September 9, 1975. Determined by R.E. Warner. This is a new county record. (Bell).

DISEASES

SKELETONWEED RUST (Puccinia chondrillina) - CALIFORNIA - Pustules on Chondrilla juncea (rush skeletonweed) at all 5 sites in Placer County and site in El Dorado County. Plants at one site with stem pustules containing spores and mycelia. (CA Pest Rep.).

FEDERAL AND STATE PROGRAMS

INSECTS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Male flight decreased to average of 0.7 male per pheromone trap at Porterville, Tulare County, week ending December 17, 1976. Freezing temperatures sharply curtailed male activity. Male flight at Porterville, Tulare County, dropped to zero for first time this season week ending December 24. Traps will be removed after 2 weeks of negative trapping. Updating of commercial lemon, pomegranate, and quince maps in Tulare County continues. (CA Pest Rep.).

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Activities continue within intensive survey zone of San Jose, Santa Clara County, week ending December 24, 1976. Crews surveyed 99 percent of these blocks once, and 35 percent of these blocks twice. To date, 69 percent of properties inside this area surveyed. Survey crews inspected 55 blocks within secondary survey zone; 53 percent of these properties surveyed. All survey results for above areas continue negative. Larvae have hatched from 3 egg masses. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Adult male trapped December 9, 1976, at Los Angeles, Los Angeles County, week ending December 17, 1976. Represents treatment expansion of at least 9 square miles and trapping expansion of at least 30 square miles. Third treatment 80 percent completed at Inglewood, second treatment completed at La Crescenta and at Pico Rivera. Fruit collection covered over 2 square miles at Inglewood area. Total of 1,640 Steiner and 518 McPhail traps in fields with 46 flies trapped. Total trap area expanded to 417 square miles in Los Angeles County week ending December 24. Total treatment expanded to total of 116.5 square miles with one treatment completed in new area in central

Los Angeles. Fruit collection continues with no larval or pupal finds. Another male trapped 3+ miles from nearest earlier catch week ending December 31. All catches to date made in Los Angeles. Total treatment area covers 125.5 square miles week ending January 7. Status of treatment areas as follows week ending January 14: Hollywood second treatment completed; central Los Angeles second treatment completed; La Cresenta fourth treatment 30 percent completed; Santa Monica fourth treatment completed; Pico Rivera fourth treatment completed; and Inglewood fifth treatment 70 percent completed. Trapping covers 450 square miles in Los Angeles County with 1,913 Steiner and 601 McPhail traps. Treatment continues but with some slowdown due to recent rains week ending January 21. To date 285,153 bait treatment stations made for male annihilation. No new fly found. Traps in field increased to 1,916 Steiner and 617 McPhail traps. (CA Pest Rep.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Increasing north and east of Hondo, Medina County, January 11. New mounds in Bandera County. (TX Coop. Rep.). ALABAMA - About 8 to 18-inch high mounds in pasture in Lee County contained many winged and worker forms with 50-62 degree F. temperatures week ending December 24, 1976. Few winged forms in flight and some dropping into nearby lakes. Mounds at 500+ per acre. (McQueen).

SCREWWORM (Cochliomyia hominivorax) - Total of 1,074 cases reported from continental U.S. November 14 to December 11, 1976, as follows: Texas 1,051, New Mexico 9, Arizona 17, California 5. Total of 1,082 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 4,407 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 474,003,600 as follows: Texas 447,300,600; Arizona 20,358,000; California 6,345,000. Total of 179,498,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Adult crawlers on previously infested deciduous magnolia tree at San Jose, Santa Clara County, week ending January 14. No finds for last 2 seasons. Treatment will begin soon. (CA Coop. Rep.).

WEEDS

TANGLEHEAD GRASS (Heteropogon contortus) - CALIFORNIA - One plant found and mechanically removed week ending December 24, 1976, after absence of 2.5 years. This plant favored by unseasonably wet desert weather in 1976. Eradicative efforts will continue until infested area is free of pest for 3 years. (CA Pest Rep.).

HAWAII PEST REPORT

Detection - A DELPHACID PLANTHOPPER (Sardia pluto (Kirkaldy)) adults collected from light trap at Honolulu International Airport, Oahu, by J. Beardsley, September 21, 1976. Determined by J.P. Kramer. This is a new United States record. Known from Sri Lanka, eastern Australia, New Caledonia, Fiji, Samoa, Tahiti, Philippines, Taiwan, and western Caroline Islands. No information available on its host or biology. (Beardsley).

Adult of BRACONID WASP (Heterospilus baeticatus) first taken at large at Tantalus, Oahu, by L. Hirata, March 28, 1969. Between 1970 and 1976, six more specimens collected from Ewa, Manoa, and Pawa, Oahu, including adult from Pahala (no island designation). Determined by P.M. Marsh. This is a new State record. This species occurs in Northeastern U.S. and is parasite of Xyletinus peltatus (an anobiid beetle). (Beardsley, Higa).

Two adults of a NYMPHALID BUTTERFLY (Agraulis vanillae vanillae) were collected independently by J.W. Beardsley and K. Arakaki at Manoa, Oahu, on January 14, 1977, near Passiflora foetida (pohapoha vines). Determined by J.W. Beardsley. This is a new State record. Survey on same day netted 7 more adults, 2 pupae, and a larval exuvium. Moderate damage, probably by this species, noted on one P. foetida vine where pupae and exuvium found. Another survey netted 6 more adults on same day at same location. This is a new State record. (Beardsley et al.).

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) counts and damage heavy (90 plus percent of leaves; 30 plus mites per square inch) in 0.25 acre of pole beans at Waianae Valley, Oahu, week ending December 17, 1976. (Kumashiro et al.). T. cinnabarinus counts and damage moderate to heavy on 0.75 acre of eggplant and 0.25 acre of pole beans at Waianae Valley, Oahu, week ending January 14. (Chun, Nakahara). LEAFMINER FLIES (Liriomyza spp.) moderate to heavy (30-60 percent of leaves heavily mined) on 5 acres of green onion (20-50 mines per leaf), 0.25 acres of tomato, and 1.5 acres of pole beans at Waianae Valley, week ending December 17, 1976. Heavy oviposition marks, 300-500 per square inch, on 0.5 acre of pole bean seedlings adjacent to green onion. (Kumashiro et al.). Continued heavy at Waianae Valley due in part to relatively warm and dry conditions week ending January 7. Counts (60-75 percent of leaves heavily mined) and damage heavy on 4 acres of green onion and 3 acres of pole beans at that locality. Earlier sample of bean leaves (3 weeks prior) revealed that only 8 percent of leafminer larvae parasitized. Infestations heavy (80 percent of leaves heavily mined) on 0.25 acre of pole beans at Waianae Valley and moderate (30-50 percent of leaves heavily mined) on 0.75 acre of eggplant on 0.5 acre of long squash, and on 0.25 acre of tomato at Lualualei and Waianae Valley, Oahu, week ending January 14. (Chun et al.). Liriomyza continued heavy in lower Waianae Valley on Oahu, week ending January 21. Counts and damage moderate to heavy (30-60 percent of leaves heavily mined) on 3 acres of pole beans, 4 acres of green onions, and 2,000 square feet of togan at that locality. Heavy infestations responsible for reduced yields and shorter harvesting periods. (Murai et al.).

CHINESE ROSE BEETLE (Adoretus sinicus) heavy damage noted on backyard plantings of pole beans at Kaumakani, Kauai, week ending December 24, 1976. (Lai et al.). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate to heavy on 0.25 acre of bush beans at Lualualei and on 2,000 square feet of eggplant and backyard plantings of tomato and yardlong beans at Pearl City, Oahu, week ending January 21. BEET ARMYWORM (Spodoptera exigua) counts and damage moderate to heavy (25-90 percent of leaves infested) on 1.5 acres of green onion at Waianae Valley and on one acre of bulb onion at Lualualei, Oahu, week ending January 21. ONION THRIPS (Thrips tabaci) counts moderate (fewer than 5 individuals per plant) on 0.5 acre of green onion and one acre of bulb onion at Lualualei, Oahu, week ending January 21. Infestations practically nil on surveyed green onion at Pearl City and Waianae Valley, Oahu. But damage moderate to heavy on onions at Lualualei and Pearl City. (Murai et al.).

Turf and pasture - GRASS WEBWORM (Herpetogramma licarsisalis) counts and damage heavy, (up to 20 larvae per square foot; 90+ percent defoliation) on 40-acre section of kikuyu and other pasture grasses at Kipahulu, Maui, week ending December 17, 1976. Adults heavy. (Miyahira).

Ornamentals - A WHITEFLY (Orchamoplatus mammaeferus) continually increasing in discovery area since first report. Light to moderate (less than 5-30 percent of leaves colonized) in several residences surveyed at Palolo, Oahu. Plants moderately infested (30 percent of leaves colonized) in late August now have as much as 75-80 percent of leaves infested with eggs and nymphs week ending November 12, 1976. O. mammaeferus infestations continued to increase at Palolo, week ending December 31. Plants now heavily infested, 80-90 percent of leaves colonized. Croton hedges heavily infested in earlier survey showed no further increase. Damage appeared negligible. Eggs to late instar nymphs light on Citrus sinensis (orange) at same locality December 28, 1976. Observed by M. Chun and L. Nakahara. Determined by S. Higa. This is a new host record. AZALEA LACE BUG (Stephanitis pyrioides) trace on one percent of terminals on azalea at Manoa, Oahu, week ending December 31, 1976. Old foliar damage heavy. (Chun, L. Nakahara).

Beneficial Insects - Activity of a GALL FLY (Procecidochares alani) moderate to heavy (16-96 percent of terminals galled) on Hamakua pamakani on Hawaii in December 1976. (Miyahira et al.). Activity moderate to heavy (55-75 percent of terminals galled) at Hualalai, Onomea, and Hoomau Ranch week ending January 14. (Matayoshi, Yoshioka). LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) (80-100 percent defoliation) and a TINGID BUG (Leptobyrsa decora) heavy on lantana in 600+ acres of pasture at Ulupalakua, Maui, week ending December 17, 1976. (Miyahira).

Miscellaneous - One adult of a VESPID WASP (Delta curvata) caught at large in office at Lihue, Kauai, by D. Sugawa, December 9, 1976. Determined by S. Higa. This is a new island record. (L. Nakahara). About 4,060 specimens of BROWN GARDEN SNAIL (Helix aspersa) recovered from infestation site at Waimea, Hawaii Island, up to December 9, 1976, in effort to eradicate this pest. (Entomol. Branch, State Dep. Agric.). Surveys for this snail in all suspected home sites outside treatment area at Waimea negative week ending January 14. No snails recovered from traps placed in pasture areas surrounding infestation site also. Snails, mainly live juveniles, still collected from infested area. (Matayoshi, Yoshioka).

DETECTION

NEW UNITED STATES RECORD

INSECTS

A DELPHACID PLANTHOPPER (Sardia pluto (Kirkaldy)) - HAWAII - Oahu Island. (p. 11).

NEW STATE RECORDS

INSECTS

A BRACONID WASP (Heterospilus baeticatus) - HAWAII - Oahu Island. (p. 11).

A NYMPHALID BUTTERFLY (Agraulis vanillae vanillae) - HAWAII - Oahu Island. (p. 11).

A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO - Curry County. (p. 7).

NEW COUNTY AND ISLAND RECORDS

INSECTS

AN AMBROSIA BEETLE (Xyleborus ferrugineus) - ALABAMA - Geneva (p. 7).

AN ARMORED SCALE (Diaspidiotus liquidambaris) - ALABAMA - Chambers (p. 7).

AN ARMORED SCALE (Fiorinia theae) - ALABAMA - Geneva (p. 6).

AN ARMORED SCALE (Lecanodiaspis prosopidis) - ALABAMA - Chambers, Montgomery (p. 7).

AN ARMORED SCALE (Rhizaspidiotus dearnessi) - ALABAMA - Barbour (p. 6).

A BRACONID WASP (Microctonus aethiopoides) - OHIO - Morrow, Richland, Ashland, Knox, Mercer (p. 8).

AN ICHNEUMONID WASP (Bathyplectes anurus) - INDIANA - Spencer, Dubois, Daviess (p. 7-8).

AN ICHNEUMONID WASP (Bathyplectes curculionis) - INDIANA - Randolph, Gibson, Spencer, Ripley, Dubois, Jennings, Union, Rush, Shelby, Grant, Fayette, Noble, Clay, Blackford, Jay (p. 8).

A MEALYBUG (Dysmicoccus obesus) - ALABAMA - Macon (p. 6).

PIGEON FLY (Pseudolynchia canariensis) - CALIFORNIA - San Joaquin (p. 7).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Stafford, Harper, Kingman, Sumner, Ellsworth, Stevens, Grant, Kiowa, Gove, Lane, Pawnee, Barton, Pratt, Ness, Rush, Trego, Lincoln, Russell, Edwards, Ford (p. 8-9).

- A PUNCTUREVINE STEM WEEVIL (Microtharus lypriformis) - KANSAS -
Stafford (p. 9).
- A SCOLYTID BEETLE (Leperisinus aculeatus) - WISCONSIN - La Crosse
(p. 7).
- A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO -
Curry (p. 7).
- A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Montgomery
(p. 5), Crenshaw (p. 7).
- A SOFT SCALE (Ceroplastes floridensis) - ALABAMA - Coffee (p. 5).
- A VESPID WASP (Delta curvata) - HAWAII - Kauai (p. 12).

CORRECTIONS

CPPR 1(48-52):896 - Distribution of Alfalfa Weevil - TEXAS - Add
El Paso, Hudspeth, and Culberson Counties as infested in 1976.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
<u>Mycosphaerella</u> sp. a fungus	imperfect	on <u>Drynaria</u> fern leaves	Miami	Thailand	FL
<u>Puccinia horiana</u> P. Henn. a rust	uredial	on <u>Chrysanthemum</u> leaves from baggage	Hawaii	Korea	HI
<u>Carposina niponensis</u> Walsingham a carposinid moth	larval	with apples from baggage	Hawaii	Japan	HI
<u>Ceratitis capitata</u> (Wiedemann) Mediterranean fruit fly	larval	in coffee berries	Miami	Brazil	FL
<u>Dacus dorsalis</u> Hendel oriental fruit fly	larval	in guavas from baggage	Hawaii	Hawaii	CA
<u>Heterotermes tenuis</u> (Hagen) a termite	adult	in cardboard cartons from mail	Port Canaveral	Eleuthera	USA
<u>Ips cembrae</u> (Heer) a scolytid beetle	adult	in wood dunnage	Detroit	Europe	USA
<u>Ips typographus</u> (Linnaeus) a scolytid beetle	all	in dunnage with machinery	New York	Germany	USA
<u>Laspeyresia splendana</u> (Hubner) an olethreutid moth	larval	in chestnuts	New York	Italy	NY
<u>Maruca testulalis</u> (Geyer) a pyralid moth	adult	with aircraft	Hawaii	Guam	USA

<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
<u>Megastigmus suspectus Borries</u> <u>a torymid seed chalcid</u>	larval	in fir seed from mail	Hoboken	Romania GA
<u>Operophtera brumata (Linnaeus)</u> <u>winter moth</u>	adult	with aircraft holds	Dover	Germany DE
<u>Orthotomicus erosus (Wollaston)</u> <u>a scolytid beetle</u>	adult	in wood crates of cargo	Baltimore	Portugal OH
<u>Pieris brassicae (Linnaeus)</u> <u>a pierid butterfly</u>	pupal	with containers of household goods	Charleston	Spain SC
<u>Pissodes pini (Linnaeus)</u> <u>a weevil</u>	adult	in wood dunnage	Detroit	Europe USA
<u>Stenoma catenifer Walsingham</u> <u>a stenomid moth</u>	larval	in avocados from baggage	Roma	Mexico TX
<u>Trogoderma granarium Everts</u> <u>khapra beetle</u>	larval	on bags of pistachio nuts	New York	Iran USA
<u>Vinsonia stellifera (Westwood)</u> <u>a coccid scale</u>	adult	on palm plants	Miami	Costa Rica FL
<u>Xyleborus eurygraphus (Ratzeburg)</u> <u>a scolytid beetle</u>	adult	in wood crates of marble	New Orleans	Italy KS
<u>Theba pisana (Muller)</u> <u>white garden snail</u>	adult	on cargo con- tainers of asbestos	Houston	South Africa TX

PEST DETECTION IN THE UNITED STATES - 1976

There were 16 new United States records reported in the "Cooperative Plant Pest Report" during 1976. These records include 14 insects and mites and two diseases. Six pests were reported for the first time on the North American continent -- two in Florida and one each in New York, Pennsylvania, Texas, and Washington, DC. None of the species reported in Hawaii or Puerto Rico is known from the continental U.S. There were 59 new State distribution records of species known to occur in the United States -- two diseases, 53 insects and mites, two snails, and two weeds.

NEW UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CPPR Page</u>	<u>Economic Importance</u>
<u>Ammophila centralis</u> Cameron a sphecid wasp	Texas	Cameron	Mexico, Central America, Venezuela	At large	8	Noneconomic
<u>Caryedon serratus</u> (Olivier) 4/ <u>groundnut bruchid</u>	Puerto Rico	-	Hawaii, Mexico, Carribean, Africa, Asia	<u>Tamarindus indica</u>	261	Economic
<u>Delphacodes nigrifacies</u> (Muir) a delphacid planthopper	Florida	Palm Beach	West Indies, Central and South America	<u>Paspalum notatum</u>	765	Probably non-economic
<u>Dichromothrips corbetti</u> (Priesner) 2/ a thrips	Florida	Lee	Hawaii, Southeast Asia	Vanda orchid	341	Could be economic
<u>Gotra sp. 1/ 4/</u> an ichneumonid wasp	Hawaii	Oahu Island	Indo-Papua area	At large	869	Probably non-economic

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CPPR Page</u>	<u>Economic- Importance</u>
Little cherry virus	Washington	Okanogan	Asia, Europe, Australia, Canada	Fruiting cherry	838	Economic
Macroglossum pyrrhostictum (Butler) 1/4/ a sphingid moth	Hawaii	Oahu Island	Asia	At large	764	Probably noneconomic
Nesothrips brevicollis (Bagnall) 2/ a thrips	Florida	Dade	Asia, Mauritius, Réunion Rodriguez	Cocos <u>nucifera</u>	95	Noneconomic
Ooencyrtus chrysopae Crawford ' an encyrtid wasp	Florida	Broward	Lesser Antilles	<u>Chrysopa</u> <u>sp.</u>	866	Probably noneconomic
Orchamoplatus mammaeferus (Quaintance & Baker) a whitefly 1/4/ a whitefly 1/4/	Hawaii	Oahu Island	Pacific Basin	<u>Codiaeum</u> <u>variegatum</u>	372	Could be economic
Phoma cryptomeriae Kawamura 1/ cryptomeria needle blight	Washington, DC.		Asia	<u>Cryptomeria</u> <u>spp.</u>	839	Could be economic
Phytoseius woodburyi De Leon a phytoseiid mite	Florida	Dade	Carribean	<u>Quercus</u> <u>virginiana</u>	841	Probably beneficial
Pygmephorus primitivus (Krczal) 1/ a pygmephoïd mite	Texas	Travis	Europe	<u>Quercus</u> <u>virginiana</u>	840	Noneconomic
Scotothrips claripennis (Moulton) 3/ a thrips	Florida	Dade	Hawaii, Mexico, Carribean, southern Africa, India	Cocos <u>nucifera</u>	95	Noneconomic

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CpPR Page</u>	<u>Economic Importance</u>
<u>Tmetothrips subapterus</u> <u>(Haliday) 1/</u> a thrips	Pennsylvania	McKean	Europe	<u>Stellaria</u> <u>graminea</u>	798	Probably noneconomic
<u>Xyleborus validus Eichhoff 1/</u> a scolytid beetle	New York	Nassau	Asia	Beech, possibly Norway maple	610	Could be economic

1/ First report in Western Hemisphere.

2/ First time reported from North American continent.

3/ New continental U.S. record.

4/ Not known to occur in continental U.S.

NEW STATE RECORDS - 1976

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Aculus comatus</u> an eriophyid mite	Washington	Clark	<u>Corylus</u> sp.	440
<u>Acyrtosiphon</u> <u>kondoi</u>	Kansas	Riley	<u>Medicago</u> <u>sativa</u>	218
blue alfalfa aphid	New Mexico	Dona Ana	<u>Medicago</u> <u>sativa</u>	218
<u>Agrilus anxius</u> bronze birch borer	Missouri	Jackson	<u>Betula</u> sp.	320
<u>Aneristus</u> sp. a eulophid wasp	Hawaii	Oahu Island	<u>Saissetia</u> <u>coffaeae</u>	516
<u>Aonidomytilus</u> <u>hyperici</u> an armored scale	Alabama	Barbour	<u>Hypericum</u> <u>fasciculatum</u>	762
<u>Ascosphaera apis</u> chalkbrood	Indiana	Carroll	<u>Apis</u> <u>mellifera</u>	242
<u>Auleutes</u> <u>tuberculatus</u> a weevil	Colorado	Weld	pasture	139
<u>Crupina vulgaris</u> common crupina	California	Sonoma	Golf course & pasture	467
<u>Dactynotus</u> <u>richardsi</u> an aphid	Utah	Cache	<u>Grindelia</u> <u>squarrosa</u>	8
<u>Diatraea</u> <u>grandiosella</u> southwestern corn borer	Indiana	Vanderburgh	<u>Zea mays</u>	4
<u>Dioryctria</u> <u>zimmermani</u> Zimmerman pine moth	Texas	Orange	<u>Pinus</u> <u>virginiana</u>	440
<u>Dolichotetranychus</u> <u>carnea</u> a false spider mite	Oklahoma	Harper	<u>Cynodon</u> <u>dactylon</u>	862
<u>Eriococcus insignis</u> an eriococcid scale	Minnesota	Ramsey	<u>Agropyron</u> <u>repens</u>	835
<u>Euceratocerus</u> <u>gibbifrons</u> an anobiid beetle	Maryland	Baltimore	Blacklight trap	646

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Forficula</u> <u>auricularia</u> European earwig	Hawaii	Maui Island	At large	138
<u>Helix aspersa</u> brown garden snail	Hawaii	Hawaii Island	Residence	846
	Nevada	Clark	Garden	576
<u>Heterodera</u> <u>glycines</u> soybean cyst nematode	Texas	Bowie	<u>Glycine max</u>	671
<u>Hydrilla</u> <u>verticillata</u> hydrilla	California	Yuba	-	866
<u>Hydrothassa</u> <u>vittata</u> a chrysomelid beetle	Maryland	Baltimore	<u>Ranunculus</u> <u>sp. probably</u> <u>repens</u>	643
<u>Hypericicoccus</u> <u>hyperici</u> an eriococcid scale	Alabama	Barbour	<u>Hypericum</u> <u>fasciculatum</u>	487
<u>Hypoderma bovis</u> northern cattle grub	Florida	Brevard	Steers	58
<u>Leperisinus</u> <u>californicus</u> a scolytid beetle	Kansas	Stevens	<u>Fraxinus sp.</u>	864
<u>Leptoglossus</u> <u>corculus</u> a coreid bug	Oklahoma	Payne	<u>Pinus</u> <u>sylvestris</u>	840
<u>Ligyrocoris</u> <u>litigiosus</u> a lygaeid bug	Hawaii	Oahu Island	<u>Bidens</u>	82
<u>Lymantria dispar</u> gypsy moth	California Wisconsin	Santa Clara Outagamie	Residence Residence	720 867
<u>Mesochorus agilis</u> an ichneumonid wasp	Wisconsin	Sheboygan	<u>Bathyplectes</u> <u>curculionis</u>	113
<u>Microlarinus</u> <u>lareynii</u> a puncturevine seed weevil	Kansas	Barber	<u>Tribulus</u> <u>terrestris</u>	804
<u>Nematodes atropos</u> an eucnemid beetle	Maryland	Baltimore	<u>Quercus sp.</u>	642

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Octotoma plicatula</u> a chrysomelid beetle	Maryland	Somerset	<u>Campsis</u> <u>radicans</u>	643
<u>Odontaleyrodes</u> <u>rhododendri</u> a whitefly	Hawaii	Hawaii Island	<u>Rhododendron</u> sp.	764
<u>Otiorynchus</u> <u>sulcatus</u> black vine weevil	Hawaii	Kauai Island	At large	538
<u>Oulema melanopus</u> cereal leaf beetle	Connecticut	Litchfield	Oats	720
<u>Paraleyrodes</u> <u>naranjæ</u> a whitefly	Hawaii	Oahu Island	<u>Citrus limon</u>	764
<u>Pseudaonidia</u> <u>pæoniae</u> an armored scale	Delaware	New Castle	<u>Camellia</u>	320
<u>Pseudocneorhinus</u> <u>bifasciatus</u> a Japanese weevil	Illinois	Jackson	Shrubs & flowers	595
<u>Pseudomyrmex</u> <u>gracilis</u> <u>mexicanus</u> an ant	Hawaii	Oahu Island	Residence	869
<u>Psylla pyricola</u> pear psylla	Colorado	Mesa	<u>Pyrus</u> sp.	135
<u>Pulvinaria</u> <u>ericicola</u> a soft scale	Alabama	Barbour	<u>Vaccinium</u> <u>arboreum</u>	391
<u>Rhizoecus</u> <u>floridanus</u> a mealybug	Alabama	Lee	Berlese	487
<u>Rumina decollata</u> a subulinid snail	Nevada	Clark	Ivy	577
<u>Scaphoideus densus</u> a leafhopper	Kentucky	Fayette	Malaise trap	11
<u>Scaphoideus incisus</u> a leafhopper	Kentucky	Pulaski	Malaise trap	11
<u>Scaphoideus</u> <u>opalinus</u> a Leafhopper	Indiana	Marion	<u>Helianthus</u> <u>tuberosus</u>	863

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Scirtes</u> sp. a helodid beetle	Hawaii	Oahu Island	Blacklight trap	67
<u>Scyphophorus</u> <u>acupunctatus</u> a weevil	Nevada	Clark	<u>Yucca</u> sp.	864
<u>Spaelotis</u> <u>clandestina</u> a noctuid moth	West Virginia	Hardy	Black oak	493
<u>Sphenophorus</u> <u>cicatristriatus</u> a billbug	Oregon	Sherman	Lawn	274
<u>Stephanitis</u> <u>pyrioides</u> azalea lace bug	Hawaii	Oahu Island	<u>Rhododendron</u> sp.	422
<u>Synanthedon</u> <u>rhododendri</u> rhododendron borer	Alabama	Marshall	<u>Rhododendron</u> spp.	6
<u>Symcoccus</u> <u>spirapunctus</u> a mealybug	Alabama	Lee	<u>Cynodon</u> <u>dactylon</u>	792
<u>Tetrastichus</u> <u>julis</u> a eulophid wasp	Maryland	Allegany	<u>Oulema</u> <u>melanopus</u>	282
	Vermont	Bennington	<u>Oulema</u> <u>melanopus</u>	368
<u>Toumeyella</u> <u>pini</u> a soft scale	Indiana	Marion	<u>Pinus</u> <u>resinosa</u>	191
<u>Tropidosteptes</u> <u>pacificus</u> a plant bug	Idaho	Latah	<u>Fraxinus</u> <u>quadrangulata</u>	92
<u>Xylosandrus</u> <u>compactus</u> a scolytid beetle	Alabama	Mobile	<u>Quercus</u> , <u>Cornus</u> , et al.	761
	Louisiana	New Orleans	<u>Magnolia</u> <u>grandiflora</u>	558

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):17-23, 1977

2008
bc176
Surveys for Alfalfa Weevil Parasites during 1976 (2,3)

R.J. Dysart and R.G. Bingham 1/ 2/

For several years, our Beneficial Insects Research Laboratory has maintained file records on all releases and recoveries of alfalfa weevil (Hypera postica) parasites in the eastern United States. Information concerning parasite releases was first published by Brunson and Coles (1968) and an updated revision of both release and recovery data has been published (Dysart and Day, 1976).

Parasite recovery information for our files has been obtained from our own surveys plus those performed by workers in many States. The parasites were either reared or swept at each locality. Determinations of species were made by R.J. Dysart. In order to inform all interested workers, new county records for parasite recoveries have traditionally been published in the "Cooperative Plant Pest Report." Our own surveys this year yielded 76 new county recovery records involving 5 parasite species. (See Table 1).

The most noteworthy new distribution records were those of the introduced ichneumonid larval parasite, Bathyplectes anurus (Thomson), which has dramatically increased its rate of dispersal in recent years. During our surveys this spring, B. anurus was recovered for the first time in 36 new counties. The parasite had been previously released in only 8 of these counties. Recoveries of B. anurus in Tennessee, Connecticut, and Vermont were new State records; no releases of the parasite were ever made in the last two States.

In the Northeast, B. anurus has now moved up the Hudson Valley and is well into New England. Natural dispersal to the south and west continues to be quite slow.

Samples of weevil larvae taken during our 1976 survey, and reared to maturity, yielded the following averages of parasitism for B. anurus: Connecticut 22 percent, Maryland (eastern) more than one percent, Massachusetts 19 percent, New Jersey (northern) 59 percent, New York (Hudson River Valley) 5 percent, Pennsylvania (eastern) 61 percent, Pennsylvania (southwestern) more than one percent, Tennessee (eastern) one percent, and Vermont (southern) 6 percent.

1/ Beneficial Insects Research Laboratory, USDA, ARS, 501 S. Chapel St., Newark, Delaware 19713.

2/ G.W. Angalet and W.H. Day also aided in our survey work.

Table 1. New County Recovery Records for Alfalfa Weevil Parasites - 1976

<u>State</u>	<u>County</u>	<u>Locality</u>	<u>Collection date</u>	<u>Parasite Species</u> <u>3/</u>
CONNECTICUT	Hartford	Granby	May 20	Ba Bc Ma Mc
	Litchfield	Sharon	May 6	Ba Bc Ma
	Middlesex	North Plain	May 7	Ba Bc Ma
	New Haven	Cheshire	May 6	Ba Bc Ma
	New London	Hamburg	May 7	Ba Bc Ma
	Tolland	Storrs	May 20	Ba
	Windham	Canterbury	May 20	Ba Bc
MARYLAND	Anne			
	Arundel	Odenton	Apr. 20	Ba
	Howard	Glenelg	Apr. 28	Ba
	Talbot	Easton	Apr. 20	Ba
	Worcester	Snow Hill	Apr. 26	Bc
MASSACHUSETTS	Berkshire	Great Barrington	May 13	Ba
	Franklin	Greenfield	May 21	Ba
	Hampden	Southwick	May 20	Ba
	Worcester	Fitchburg	June 10	Ba
	Worcester	Rutland	May 20	Ma
NEW JERSEY	Bergen	Oakland	May 12	Ba
	Camden	Cedar Brook	May 19	Ba
	Gloucester	Williamstown	May 19	Ba
	Hunterdon	Lebanon	May 5	Ba
	Mercer	Pennington	May 5	Ba
	Middlesex	Dayton	May 12	Mc
	Morris	Chester	May 19	Ba
	Passaic	Pompton Lakes	May 12	Ba Bc Ma
NEW YORK	Albany	Preston		
		Hollow	May 14	Bc Ma
	Columbia	Ancram	May 6	Ba
	Greene	East Durham	May 14	Bc
	Greene	Lexington	May 6	Ma
	Herkimer	Mohawk	June 9	Mc
	Montgomery	Nelliston	June 11	Ba
	Rensselaer	Berlin	May 13	Ba
	Saratoga	Schuylerville	May 14	Ba
	Schenectady	Duanesburg	May 14	Bc Ma
	Washington	Cambridge	May 13	Ba
PENNSYLVANIA	Adams	Gettysburg	Apr. 26	Ba Bc
	Allegheny	Clinton	June 23	Bc
	Fayette	Farmington	June 3	Ba Bc Mc Ti
	Greene	Holbrook	June 23	Bc Ma
	Lackawanna	Clarks Summit	June 22	Bc
	Lackawanna	Cortez	May 5	Ma
	Luzerne	Conyngham	Apr. 26	Ba
	Pike	Tafton	May 5	Ma
	Schuylkill	Pine Grove	Apr. 26	Ba Bc
	Somerset	Listonburg	June 3	Ba
	Wayne	Varden	May 5	Ma
	Wyoming	Falls	June 22	Bc

Table 1 (cont.)

<u>State</u>	<u>County</u>	<u>Locality</u>	<u>Collection date</u>	<u>Parasite Species</u> <u>3/</u>
TENNESSEE	Cocke	Newport	May 9	Ba
	Cumberland	Crossville	May 9	Ba
	Greene	Greeneville	May 11	Ba
VERMONT	Bennington	Pownal	May 13	Ba
	Rutland	Wells	May 13	Ma
	Windham	Brattleboro	June 9	Ba Mc
WEST VIRGINIA	Marshall	Bellton	June 27	Ti

3/ Ba = Bathyplectes anurus (Thomson).
Bc = B. curculionis (Thomson)
Ma = Microctonus aethiopoides Loan
Mc = M. colesi Drea
Ti = Tetrastichus incertus (Ratzeburg)

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U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):24-26, 1977

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First Report of Comperia merceti (Compere) in
Wisconsin (Hymenoptera: Encyrtidae)

Ralph W. Howard 1/ 2/ and James W. Mertins 2/

The host specific encyrtid parasitoid Comperia merceti (Compere) attacks oothecae of brownbanded cockroach Supella longipalpa (Fabricius) in Kentucky, Georgia, Virginia, California, Maryland, Hawaii, Arizona, Illinois, Florida, Kansas, Missouri, South Carolina, Africa, South America, Central America, and the West Indies (Gomes, 1942; Muesebeck, Krombein, and Townes, 1951; Roth and Willis, 1960; Gordh, 1975 3/). Details of its biology were given by Lawson (1954) and Gordh (1973). The northernmost limit of its range may now be extended to include Wisconsin, as we have found flourishing populations of this wasp in housing units on the Madison campus of the University of Wisconsin. Specimens were first collected by Ralph W. Howard on March 18, 1975. (Confirmation of species identity was kindly provided by Dr. Gordon Gordh, Systematic Entomology Laboratory, U.S. Department of Agriculture). The large numbers of brownbanded cockroaches in these housing units appear to corroborate the prediction by Gordh (1973) that C. merceti will not function as an efficient agent of biological population suppression.

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- 1/ Department of Entomology, University of Wisconsin, Madison, Wisconsin 53706
- 2/ Present address: Wood Products Insect Laboratory, Forest Service, USDA, P.O. Box 2008, Evergreen Station, Gulfport, Mississippi 39501
- 3/ Personal communication to J.W. Mertins dated April 7, 1975. Data from records of the U.S. National Museum.

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Coop. Plant Pest Rep.
2(1-4):27, 1977

STATE SURVEY COORDINATORS

Alabama	Dr. Kirby L. Hays, Head, Zoology-Entomology Department, Funchess Hall, Auburn University, Auburn, AL 36830 Phone: 205-826-4850
Alaska	Dr. Richard H. Washburn, Research Entomologist, Agricultural Experiment Station, University of Alaska, P.O. Box AE, Palmer, AK 99645 Phone: 907-745-3257
Arizona	Dr. Dave T. Langston, Extension Specialist-Entomology, 4341 E. Broadway Road, Phoenix, AZ 85040 Phone: 602-271-3256 or 602-271-4456
Arkansas	Dr. F.D. Miner, Head, Department of Entomology, University of Arkansas, Fayetteville, AR 72701 Phone: 501-575-2451
California	Mr. Donald R. Dilley, Principal Staff Entomologist, Division of Plant Industry, Special Services, California Department of Food and Agriculture, 1220 N Street, Room 301, Sacramento, CA 95814 Phone: 916-445-3588
Colorado	Dr. W. Don Fronk, Department of Zoology and Entomology, Colorado State University, Fort Collins, CO 80523 Phone: 303-491-5843
Connecticut	Mr. George W. Schuessler, Deputy State Entomologist, Agricultural Experiment Station, Box 1106, New Haven, CT 06504 Phone: 203-787-7421
Delaware	Dr. Dale F. Bray, Head, Department of Entomology and Applied Ecology, University of Delaware, Newark, DE 19711 Phone: 302-738-2526
Florida	Mr. H.L. Jones, Director, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville, FL 32602 Phone: 904-372-3505
Georgia	Mr. Carl M. Scott, Jr., Director, Division of Entomology, Georgia Department of Agriculture, 19 Hunter Street, Room 304, Atlanta, GA 30334 Phone: 404-656-3641
Hawaii	Mr. Larry M. Nakahara, Hawaii State Department of Agriculture, P.O. Box 22159, Honolulu, HI 96822 Phone: 808-941-3071, Ext. 165 or 130
Idaho	Dr. A.R. Gittins, Head, Department of Entomology, College of Agriculture, University of Idaho, Moscow, ID 83843 Phone: 208-885-6595
Illinois	Mr. Kevin Black, Extension Entomologist, University of Illinois and Illinois Natural History Survey, Natural Resources Building, Urbana, IL 61801 Phone: 217-333-6651

Indiana	Dr. Eldon E. Ortman, Head, Department of Entomology, Purdue University, West Lafayette, IN 47907 Phone: 317-493-9185
Iowa	Dr. H.J. Stockdale, Extension Entomologist, Room 103 Insectary, Iowa State University, Ames, IA 50011 Phone: 515-294-1101
Kansas	Dr. Richard J. Sauer, Head, Department of Entomology, Kansas State University, Manhattan, KS 66506 Phone: 913-532-6154
Kentucky	Dr. R.A. Scheibner, Extension Specialist, Department of Entomology, University of Kentucky, Lexington, KY 40506 Phone: 606-258-5638
Louisiana	Dr. L.D. Newsom, Head, Department of Entomology, Louisiana State University, Baton Rouge, LA 70803 Phone: 504-388-1634
Maine	Dr. J.B. Dimond, Head, Department of Entomology, University of Maine, Orono, ME 04473 Phone: 207-581-7704
Maryland	Dr. W.C. Harding, Jr., Extension Entomologist, Department of Entomology, University of Maryland, College Park, MD 20742 Phone: 301-454-3845
Massachusetts	Dr. James Kring, Department of Entomology, University of Massachusetts, Amherst, MA 01002 Phone: 413- 545-2285
Michigan	Dr. James E. Bath, Chairman, Department of Entomology, Michigan State University, East Lansing, MI 48824 Phone: 517-355-4665
Minnesota	Mr. Robert B. Flaskerd, Director, Division of Plant Industry, Minnesota Department of Agriculture, 670 State Office Building, St. Paul, MN 55155 Phone: 612-296-3347
Mississippi	Dr. Daniel L. Shankland, Head, Department of Entomology, P.O. Drawer EM, Mississippi State University, Mississippi State, MS 39762 Phone: 601-325-4541
Missouri	Dr. W.S. Craig, Extension Entomologist, Department of Entomology, 1-87 Agriculture Building, University of Missouri, Columbia, MO 65201 Phone: 314-882-3446
Montana	Dr. Gary L. Jensen, Extension Entomologist, Lewis Hall, Montana State University, Bozeman, MT 59715 Phone: 406-994-2440
Nebraska	Dr. Elvis A. Dickason, Chairman, Department of Entomology, University of Nebraska, Lincoln, NE 68583 Phone: 402-472-2123

Nevada Mr. Harry E. Gallaway, Director, Division of Plant Industry, Nevada Department of Agriculture, P.O. Box 11100, Reno, NV 89510 Phone: 702-784-6401

New Hampshire Mr. Arthur H. Mason, State Entomologist, New Hampshire Department of Agriculture, Nesmith Hall, Durham, NH 03824 Phone: 603-862-2300

New Jersey Dr. Billy R. Wilson, Chairman, Department of Entomology and Economic Zoology, College of Agriculture and Environmental Science, Rutgers University, New Brunswick, NJ 08903 Phone: 201-247-1766, Ext. 1774

New Mexico Dr. William A. Iselin, Division of Plant Industry, New Mexico Department of Agriculture, Box 3BA, Las Cruces, NM 88003 Phone: 505-646-3207

New York Dr. Edward H. Smith, Department of Entomology, Cornell University, Ithaca, NY 14853 Phone: 607-256-3253

North Carolina Dr. Gerald T. Weekman, Extension Entomologist, North Carolina State University, P.O. Box 5215, State College Station, Raleigh, NC 27607 Phone: 919-755-2746

North Dakota Mr. William J. Brandvik, State Entomologist, Department of Agriculture, State Capitol, Bismarck, ND 58501 Phone: 701-224-2234

Ohio Dr. Robert E. Treece, Ohio Agricultural Research and Development Center, Wooster, OH 44691 Phone: 216-264-2540

Oklahoma Dr. D.C. Peters, Head, Department of Entomology, Oklahoma State University, Stillwater, OK 74074 Phone: 405-624-5527

Oregon Mr. William Kosesan, Administrator, Plant Division, Oregon State Department of Agriculture, Agriculture Building, 635 Capital, NE., Salem, OR 97310 Phone: 503-378-3776

Pennsylvania Dr. Ke Chung Kim, The Frost Entomological Museum, Department of Entomology, The Pennsylvania State University, 201 Patterson Building, University Park, PA 16802 Phone: 814-865-1895

Puerto Rico Dr. Mario E. Pérez-Escolar, Acting Director, Agricultural Experiment Station, University of Puerto Rico, Rio Piedras, PR 00928 Phone: 809-767-9705

Rhode Island Dr. Rudolph D'Andrea, Chief, Division of Agriculture, Department of Natural Resources, Veterans Memorial Building, Providence, RI 02903 Phone: 401-277-2781

South Carolina	Dr. J.B. Kissam, Professor, Extension Entomology and Economic Zoology, 105 Long Hall, Clemson University, Clemson, SC 29631 Phone: 803-656-3113
South Dakota	Dr. Robert J. Walstrom, Head, Entomology-Zoology Department, South Dakota State University, Brookings, SD 57006 Phone: 605-688-6176
Tennessee	Mr. H.L. Bruer, Director, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville, TN 37204 Phone: 615-741-1551
Texas	Dr. P.L. Adkisson, Head, Department of Entomology, Texas A&M University, College Station, TX 77843 Phone: 713-845-2516
Utah	Mr. Reed S. Roberts, Extension Entomologist, Utah State University, Logan, UT 84322 Phone: 801-752-4100, Ext. 7871
Vermont	Mr. Phil R. Benedict, Plant Pest Control Division, Vermont Department of Agriculture, 116 State Street, State Office Building, Montpelier, VT 05602 Phone: 802-828-2420 or 802-828-2431
Virginia	Dr. J.M. Grayson, Head, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 Phone: 703-951-6341
Washington	Dr. Robert F. Harwood, Chairman, Department of Entomology, Washington State University, Pullman, WA 99163 Phone: 509-335-5504
West Virginia	Mr. Albert E. Cole, Director, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston, WV 25305 Phone: 304-348-2212
Wisconsin	Mr. Philip W. Smith, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison, WI 53713 Phone: 608-266-7133
Wyoming	Mr. Walter H. Patach, Director, Division of Plant Industry, Wyoming Department of Agriculture, 2219 Carey Avenue, Cheyenne, WY 82002 Phone: 307-777-7321

Revised January 21, 1977

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Coop. Plant Pest Rep.
2(1-4):28-31, 1977

COOPERATIVE SURVEY ENTOMOLOGISTS

Alabama	Mr. H. Frank McQueen, Survey Entomologist, Extension Hall, Auburn University, Auburn, AL 36830 Phone: 205-826-4987
Arizona	Vacant
Arkansas	Dr. Bill F. Jones, Department of Entomology, University of Arkansas, Fayetteville, AR 72701 Phone: 501-575-2451
California	Mr. Lyndon S. Hawkins, Survey Entomologist, Division of Plant Industry, Special Services, California Department of Food and Agriculture, 1220 N Street, Room 301, Sacramento, CA 95814 Phone: 916-445-5986
Colorado	Modified Agreement
Delaware	Modified Agreement
Florida	Dr. Frank W. Mead, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville, FL 32602 Phone: 904-372-3505, Ext. 285
Hawaii	Mr. Larry M. Nakahara, Hawaii State Department of Agriculture, P.O. Box 22159, Honolulu, HI 96822 Phone: 808-941-3071, Ext. 165 or 130
Idaho	Modified Agreement
Illinois	Mr. Kevin D. Black, University of Illinois, 169 Natural Resources Building, Urbana, IL 61801 Phone: 217-333-6652
Indiana	Mr. Robert W. Meyer, Department of Entomology, Purdue University, West Lafayette, IN 47907 Phone: 317-493-9705
Iowa	Dr. Jerald R. DeWitt, Extension Entomologist, 103 Insectary, Iowa State University, Ames, IA 50011 Phone: 515-294-1101
Kansas	Dr. K.O. Bell, Jr., Division of Entomology, Kansas State Board of Agriculture, 1720 S. Topeka Avenue, Topeka, KS 66612 Phone: 913-296-3016
Kentucky	Mr. Phillip E. Sloderbeck, Survey Entomologist, Department of Entomology, University of Kentucky, Lexington, KY 40506 Phone: 606-258-5955
Maine	Mr. Arthur Gall, Department of Entomology, University of Maine, Orono, ME 04473 Phone: 207-581-7703
Maryland	Dr. John L. Hellman, Department of Entomology, University of Maryland, College Park, MD 20742 Phone: 301-454-3845

Massachusetts Modified Agreement

Michigan Dr. M. Keith Kennedy, Department of Entomology,
Michigan State University, East Lansing, MI 48824
Phone: 517-353-3890

Minnesota Dr. Dharma Sreenivasam, Division of Plant Industry,
Minnesota Department of Agriculture, 670 State
Office Building, St. Paul, MN 55155
Phone: 612-296-3347

Mississippi Mr. Ronald E. Anderson, Survey Entomologist, P.O.
Drawer EM, Mississippi State University, Mississippi
State, MS 39762 Phone: 601-325-4541

Missouri Dr. Ralph E. Munson, Department of Entomology, 1-87
Agriculture Building, University of Missouri,
Columbia, MO 65201 Phone: 314-882-3748

Montana Modified Agreement

Nebraska Dr. David L. Keith, Extension-Survey Entomologist,
Department of Entomology, University of Nebraska,
Lincoln, NE 68583 Phone: 402-472-2123

Nevada Modified Agreement

New Hampshire Dr. John F. Burger, Department of Entomology,
Nesmith Hall, University of New Hampshire, Durham,
NH 03824 Phone: 603-862-1707

New Mexico Dr. William A. Iselin, Division of Plant Industry,
New Mexico Department of Agriculture, Box 3BA, Las
Cruces, NM 88003 Phone: 505-646-3207

New York Dr. Harold R. Willson, Survey Entomologist, Depart-
ment of Entomology, Caldwell Hall, Cornell University,
Ithaca, NY 14853 Phone: 607-256-3222

North Carolina Mr. Thomas N. Hunt, Survey Entomologist, 2309
Gardner Hall, North Carolina State University,
Raleigh, NC 27607 Phone: 919-737-2831

North Dakota Mr. Calvin G. Scholl, Assistant State Entomologist,
Entomology Department, North Dakota State University,
Fargo, ND 58102 Phone: 701-237-7581

Ohio Vacant

Oklahoma Mr. Don C. Arnold, Department of Entomology,
Oklahoma State University, Stillwater, OK 74704
Phone: 405-624-5531

Oregon Dr. Richard L. Penrose, Plant Division, Oregon State
Department of Agriculture, Agriculture Building, 635
Capital, N.E., Salem, OR 97310 Phone: 503-378-3776

Pennsylvania	Dr. Ke Chung Kim, The Frost Entomological Museum, Department of Entomology, The Pennsylvania State University, 201 Patterson Building, University Park, PA 16802 Phone: 814-865-1895
Rhode Island	Modified Agreement
South Carolina	Mr. Heyward B. Douglass, Survey Entomologist, 104 Long Hall, Clemson University, Clemson, SC 29631 Phone: 803-656-3113
South Dakota	Dr. David D. Walgenbach, Entomology-Zoology Department, South Dakota State University Brookings, SD 57006 Phone: 605-688-6176
Tennessee	Mr. Chester D. Gordon, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville, TN 37204 Phone: 615-741-1551
Texas	Dr. J.A. Jackman, Department of Entomology, 301 Biological Science Building, Texas A&M University, College Station, TX 77843 Phone: 713-845-1661
Utah	Modified Agreement
Virginia	Dr. William A. Allen, Extension Specialist & Survey Entomologist, Department of Entomology, 312 Price Hall, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 Phone: 701-951- 6772
Washington	Modified Agreement
West Virginia	Mr. J.D. Hacker, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston, WV 25305 Phone: 304-348-2212
Wisconsin	Mr. Orville L. Lovett, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison, WI 53713 Phone: 608-266-7138
Wyoming	Modified Agreement

Revised January 21, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):32-34, 1977

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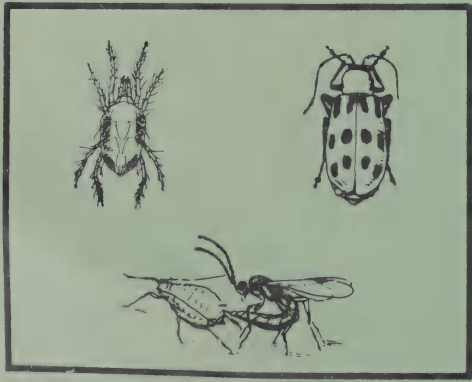
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This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Detection

A WEEVIL in NEVADA is a new State record. (p. 37).

A new host for GREEN PEACH APHID reported in Florida. (p. 37).

Special Reports

EUROPEAN CORN BORER fall populations decreased in 10 of 13 States. Populations increased in Minnesota and remained about the same in 2 States. (p. 41-48).

Reports in this issue are for the week ending January 28 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Aerial treatment applied to 10,000+ acres at Coalinga, Fresno County, to prevent CURLY TOP VIRUS. Adverse weather hampered operations. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot of small grains by county: in Archer, Hardeman, Jones, and Knox (January 17) 0-15; Archer, Baylor, Hardeman, Knox, Wichita, Young, and Fisher currently 0-3 in some fields. Mean maximum of 38 per row foot in Fisher County January 17 with 52 per row foot maximum in spots. (Boring).

SMALL GRAINS

INSECTS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light in many small grain fields in Hardeman County January 17. Currently light in some small grain fields in Jones, Knox, and Wichita Counties. (Boring).

DECIDUOUS FRUITS AND NUTS

INSECTS

ITALIAN PEAR SCALE (Epidiaspis leperii) - CALIFORNIA - Adults numerous per limb on apple, pear, and apricot trees at Aromas and Prunedale, Monterey County; treatment necessary. (CA Pest Rep.).

ORNAMENTALS

INSECTS

A WEEVIL (Scyphophorus yuccae) - NEVADA - Collected on Yucca sp. at Riverside, Clark County, May 13, 1970, by R.C. Bechtel and D.F. Zoller. Determined by R.C. Bechtel. This is a new State record. (Bechtel).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Adults infested leaves of 5 percent of 200 Mikania ternata (a plush vine plant) in nursery at Gibsonton, Hillsborough County. Collected by E.R. Simmons, January 17, 1977. This is a new host record for State. (FL Coop. Surv.).

OLEANDER SCALE (Aspidiotus nerii) - OREGON - Moderate to heavy on several thousand Pachysandra plants at Hillsboro area greenhouse, Washington County. Infested about 5-10 percent of stock plants and rooted cuttings. (Sjoblom).

FEDERAL AND STATE PROGRAMS

DISEASES

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - All work completed at a school site including removal and destruction of 140 elms in Marin County. Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytis multistriatus) to begin week ending February 4 in Napa County. (CA Pest Rep.).

INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Nymphs 1,000 per leaf on residential planting of orange at National City, San Diego County. (CA Pest Rep.).

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Infested properties (7) at San Jose, Santa Clara County, treated to eliminate larvae which may have emerged. All potential hosts, including pyracantha, treated. Survey nearly completed and reached 8,000+ properties in core area. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Treatment on schedule with major area, La Crescenta, Los Angeles County, in its fifth treatment. Fruit collecting will end January 31 as long as no additional flies found. (CA Pest Rep.).

SCREWORM (Cochliomyia hominivorax) - Total of 38 cases reported from continental U.S. December 12-25, 1976, as follows: Texas 35, Arizona 3. Total of 272 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,505 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 192,711,000 as follows: Texas 185,061,000, Arizona 5,076,000, California 2,574,000. Total of 143,721,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW STATE RECORD

INSECTS

A WEEVIL (Scyphophorus yuccae) - NEVADA - Clark County. (p. 37).

CORRECTIONS

CPPR 1(48-52):864 - A WEEVIL (*Scyphophorus acupunctatus*) - Delete "Subsequent collection on Yucca sp. at Riverside, Clark County, by R.C. Bechtel and D.F. Zoller, May 13, 1970. "See A WEEVIL (*Scyphophorus yuccae*)," CPPR 2(5):37.

CPPR 2(1-4):10 - SCREWWORM (*Cochliomyia hominivorax*) - Total of 179,498,000 sterile flies released within Barrier ... should be ... Total of 43,929,000 sterile ...

CPPR 2(1-4):11 - To "Adult of a BRACONID WASP ... parasite of *Xyletinus peltatus* (an anobiid beetle)" add *X. peltatus* not known to occur in Hawaii.

CPPR 1(48-52):894 - *Aleurocanthus woglumi* - Change "on citrus fruit" to "on citrus leaves"

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
<u>Cacoecimorpha pronubana</u> (Hubner) a tortricid moth	larval	in guavas from baggage	Boston	Portugal	USA
<u>Hyllobius abietis</u> (Linnaeus) a curculionid weevil	adult	in wood crates of glass	Savannah	Poland	USA
<u>Ips typographus</u> (Linnaeus) a scolytid beetle	adult	in wood dunnage with circuit breakers	New York	France	NY
<u>Leucinodes orbonalis</u> Guenee a pyralid moth	larval	in eggplants from baggage	Kennedy Airport	Africa	USA
<u>Megastigmus schimitscheki</u> Kowickey a torymid wasp	larval	in cedar seed	Hoboken	Turkey	MA
<u>Parlatoria blanchardi</u> (Targ.) parlatoria date scale	adult	on dates from baggage	Dulles	Algeria	TX
<u>Pityogenes chalcographus</u> (Linnaeus) a scolytid beetle	adult	in wood cases of machinery	New York	West Germany	NY
<u>Thrips obscuratus</u> (Crawford) a thrips	adult	on peaches from cargo	San Francisco	New Zealand	CA
<u>Xyleborus validus</u> Eichhoff a scolytid beetle	adult	in wood dunnage with aluminum	Savannah	Japan	USA

Status of the European Corn Borer in 1976^{1/}

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hübner)) in the fall of 1976 were conducted by cooperating agencies in 14 States. All survey data, summaries, and records of field observations were processed by the New Pest Detection and Survey Staff in Hyattsville, Maryland.

The 1976 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some differences in compiling data, the accepted survey methods were followed in all cases. The survey was conducted on a district basis wherever possible in 1976. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time in one county in Florida.

Abundance: European corn borer fall populations greatly decreased in 10 of the 13 States surveyed in 1975 and 1976. Populations increased in one State and were similar for both years in two States.

The fall European corn borer population in Illinois decreased 59 percent from the 1975 State average. Larvae averaged 34 per 100 plants on 22 percent of the plants in 1976. Infestations were heaviest in the northwest and west districts. Of the 40 counties surveyed, one county, Henderson, in the west district had the heaviest average of 100 larvae per 100 plants. In Iowa, over 100 European corn borers per 100 stalks were present in all except 4 of the 12 districts.

The State average in Missouri, a decrease from the 1975 average, was 107 larvae per 100 plants on 62 percent of the plants.

Fall European corn borer populations decreased 41 percent in Kansas. Populations were heaviest, 89 per 100 stalks, in the north-east district. Averages in 1976 were higher than in 1975 for the larval population in the central and south-central districts and for the percent of infested stalks in the south-central district. Fall populations decreased 62 percent in Nebraska. Infestations were heaviest in the east and central districts with 322 larvae per 100 plants on 81 percent of the plants in the east district and 214 larvae per 100 plants on 71 percent of the plants in the central district.

1/ Survey data provided by State agricultural agencies. Data compiled and summarized by New Pest Detection and Survey Staff, Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service, United States Department of Agriculture.

The State average in Minnesota increased 73 percent from 37 in 1975 to 64 larvae per 100 plants in 1976. Only the south-central district had over 100 larvae per 100 plants. Increases occurred in the central, southwest, south-central, and southeast districts. The State average for Wisconsin, 23 per 100 plants, was well below the 30-year average of 45 per 100 plants.

In Delaware, the State average decreased 78 percent from the 1975 average to 85 larvae per 100 plants. Statewide, infested plants averaged 40 percent.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1976, Compared with Data for 1975

States	1975				1976				Comparable Districts or Counties			
	:Average No.:		:No. of :		:Average No.:		:No. of :		:Surveyed Both Years		:Borers Per 100 Plants	
	:No. of	:Districts	:of Borers	:Counties:	:No. of	:Districts	:of Borers	:Counties:	:Surveyed	:Number:	:1975	:1976
:Surveyed :100 Plants												
<u>Eastern</u>												
Delaware	1	-	389	3	1	85	3	1	389	85		
Maryland	1	-	-	-	3	46	13	-	-	46		
Total	1			3	4		16		389	66		
<u>Average 2/</u>												
<u>North Central</u>												
Illinois	8		83	32	9	34	40	8	83	34		
Indiana	12		34	92	12	37	92	12	34	37		
Iowa	12		144	99	12	122	99	12	144	122		
Kansas	9		59	60	9	34	58	9	58	34		
Michigan	5		103	20	5	57	20	5	98	60		
Minnesota	7		37	34	7	64	34	7	37	64		
Missouri	8		146	40	8	107	39	8	148	112		
Nebraska	5		461	25	5	175	25	5	461	175		
North Dakota	1		34	5	1	25	5	1	34	25		
Ohio	5		57	33	5	27	33	5	57	27		
South Dakota	5		75	32	2	67	19	2	127	67		
Wisconsin	9		22	54	9	23	54	9	22	23		
Total	86			526	84		518		109	65		
<u>Average 2/</u>												
<u>Southern</u>												
Kentucky	3/	5	40	19	-	-	-	-	-	-		

1/ No survey conducted in 1975.
2/ Weighted averages based on districts surveyed.
3/ No survey conducted in 1976.

Table 2 - European Corn Borer Abundance in Corn
Fall of 1976, Compared with Data for 1975

State (Districts or Counties)	Average Number of Borers Per 100 Plants		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1975	1976		1975	1976
<u>Delaware</u> (Agric. Exp. Stn.)			<u>Iowa</u> (State Dep. Agric.; Ext. Serv.; Entomol. Dep. Iowa State Univ.; PESS, ARS, USDA)		
New Castle	157	75	District I	191	156
Kent	451	101	District II	61	139
Sussex	<u>560</u>	<u>80</u>	District III	40	71
Average	389	85	District IV	356	195
<u>Illinois</u> (Nat. Hist. Surv., Ext. Serv.)			District V	121	86
Northwest	184	67	District VI	64	130
Northeast	63	11	District VII	343	191
West	85	73	District VIII	68	102
Central	18	11	District IX	225	118
East	21	12	District X	102	85
West-southwest	80	23	District XI	59	90
East-southeast	55	32	District XII	<u>97</u>	<u>105</u>
Southwest	155	36	Average	144	122
Southeast	<u>-</u>	<u>42</u>	<u>Kansas</u> (Insect Surv.)		
Average <u>1</u>	83	34	Northeast	165	89
<u>Indiana</u> (Ext. Serv. Exp. Stn.)			North Central	78	64
North-northwest	32	25	East Central	68	61
North-northcentral	58	57	Central	6	22
North-northeast	54	71	Southeast	105	17
Northwest	15	23	South Central	40	46
North Central	27	19	Northwest	31	5
Northeast	22	21	West Central	13	2
Southwest	37	26	Southwest	<u>23</u>	<u>4</u>
South Central	4	32	Average	59	34
Southeast	13	10	<u>Kentucky</u> (Insect Surv.)		
South-southwest	71	71	District I	28	
South-southcentral	30	72	District II	31	
South-southeast	<u>31</u>	<u>26</u>	District III	30	
Average <u>2</u>	34	37	District V	32	
			District VI	<u>77</u>	
			Average	40	<u>3</u>

1 Based on comparable counties surveyed
in 1974 and 1975.

2 Based on 189 fields surveyed.

3 No report

Table 2 (Continued)

State (Districts or Counties)	Average Number of Borers Per 100 Plants		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1975	1976		1975	1976
<u>Maryland</u> (Agric. Ext. Serv.; Insect Surv.)			<u>Nebraska</u> (Agric. Exp. Stn.; Ext. Serv., Insect Surv.)		
Eastern Shore		104	Northeast	743	185
Southern area		42	East	631	322
Central and Western area		8	Southeast	225	74
Average	<u>4</u>	<u>46</u> <u>5</u>	Central	431	214
			South	<u>274</u>	<u>79</u>
<u>Michigan</u> (Insect Surv.)			Average	461	175
District 1	109	37	<u>North Dakota</u> (State Dep. Agric.)		
District 2	109	117			
District 3	111	72	Southeast <u>7</u>	34	25
District 4	96	15			
District 5	<u>92</u>	<u>44</u>	<u>Ohio</u> (Ext. Serv.; ARS, USDA)		
Average <u>6</u>	103	57	Northwestern	87	33
<u>Minnesota</u> (State Dep. Agric.)			West-central	46	21
Northwest	18	9	Central	40	30
West Central	60	20	Southwestern	30	22
Central	46	92	Northeastern	<u>59</u>	<u>39</u>
East Central	31	30	Average	57	27
Southwest	40	67			
South Central	45	151	<u>South Dakota</u> (Agric. Exp. Stn., Ext. Serv.)		
Southeast	<u>19</u>	<u>68</u>			
Average <u>6</u>	37	64	North Central	35	-
<u>Missouri</u> (Ext. Serv., Insect Surv.)			Northeast	52	-
District I	194	125	Central	32	-
District II	147	72	East Central	75	42
District III	187	95	Southeast	179	91
District IV	94	72	South Central	<u>8</u>	-
District V	107	90	Average	75	<u>67</u> <u>9</u>
District VI	179	141			
District VII	74	54			
District IX	<u>188</u>	<u>204</u>			
Average	146	107			
<u>4</u> No report			<u>7</u> Based on number of fields surveyed.		
<u>5</u> Based on number of counties surveyed.			<u>8</u> No report.		
<u>6</u> Based on number of fields surveyed.			<u>9</u> Other districts not surveyed due to drought.		

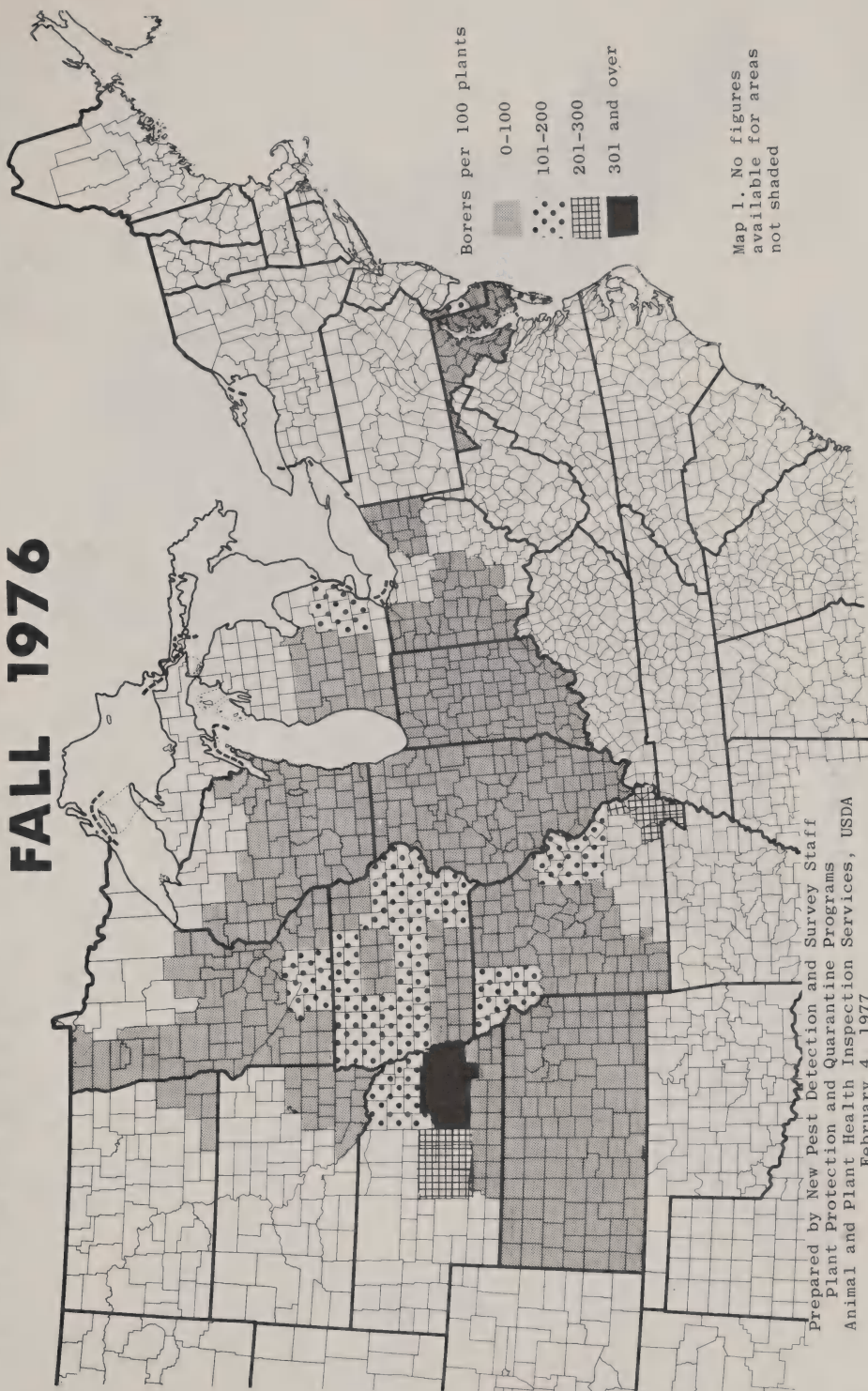
Table 2 (Continued)

State Districts or Counties	Average Number of Borers Per 100 Plants	
	1975	1976
Wisconsin State Dep. Agric.)		
Northwest	45	17
North Central	23	10
West Central	17	28
Central	18	9
Southwest	19	46
South Central	13	30
Southeast	44	12
East Central	20	9
Northeast	31	4
Average	22 <u>10</u> /	23 <u>11</u> /

10/ Based on 228 dent corn fields surveyed.

11/ Based on 226 fields surveyed.

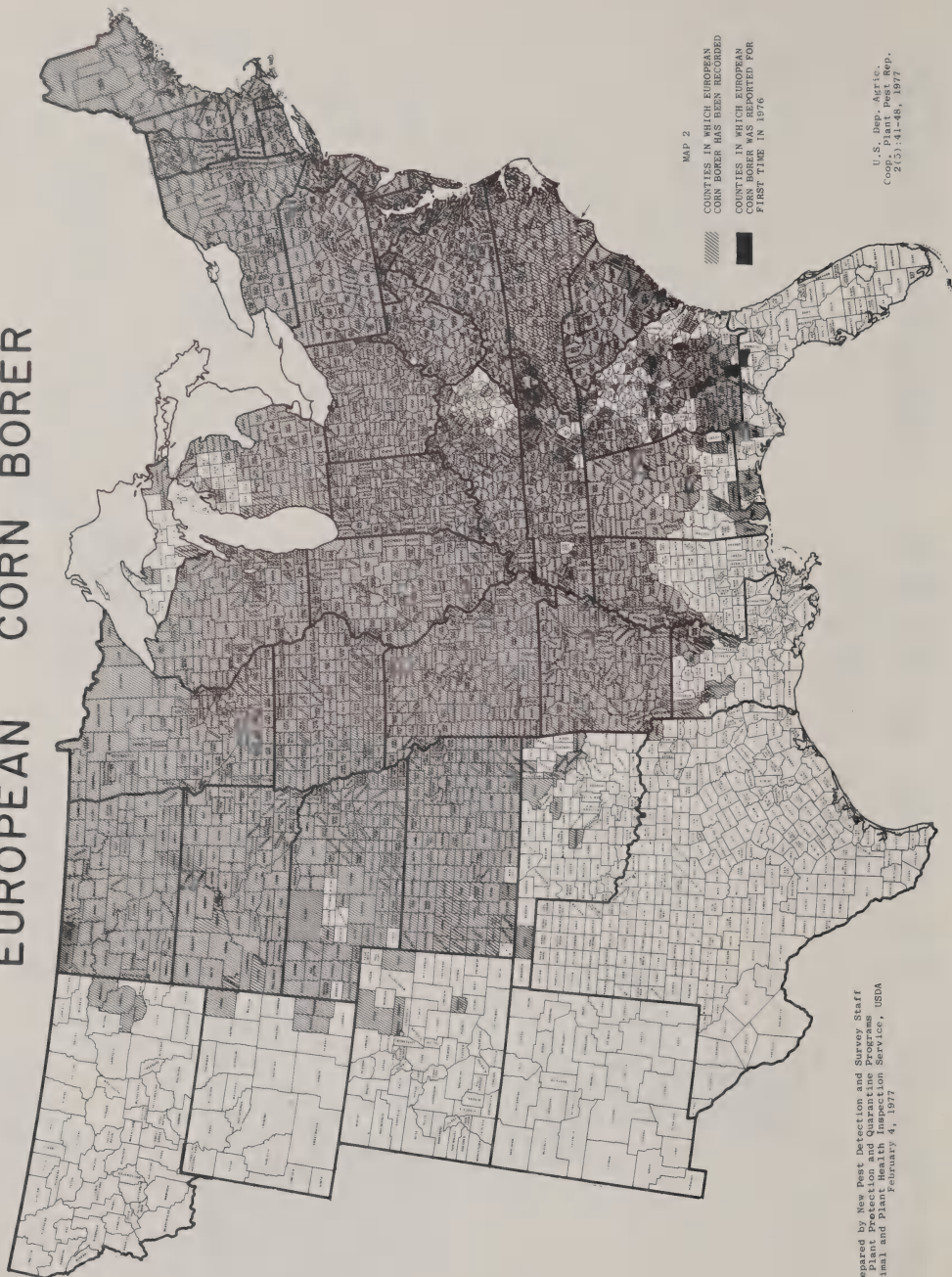
EUROPEAN CORN BORER ABUNDANCE FALL 1976



Map 1. No figures available for areas not shaded

Prepared by New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Services, USDA
February 4, 1977

EUROPEAN CORN BORER



MAP 2
COUNTIES IN WHICH EUROPEAN
CORN BORER HAS BEEN RECORDED
COUNTIES IN WHICH EUROPEAN
CORN BORER WAS REPORTED FOR
FIRST TIME IN 1976

U.S. Dep. Agric.
Plant Protection Service
2151 L Street, N.W.
Washington, D.C. 20514

Prepared by New Pest Detection and Survey Staff
Plant Protection Service, U.S. Department of Agriculture
Animal and Plant Health Inspection Service, USDA
February 8, 1977

UNITED STATES DEPARTMENT OF AGRICULTURE
Animal and Plant Health Inspection Service
Hyattsville, Maryland 20782

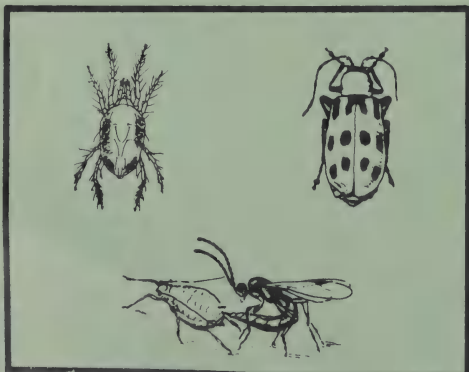
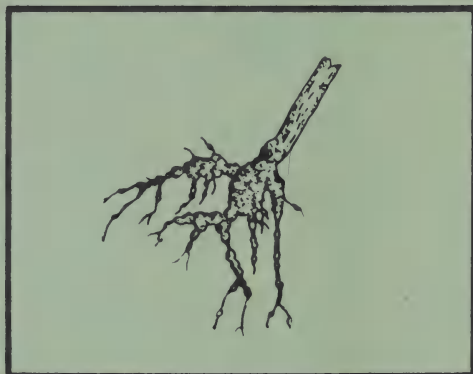
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Cooperative PLANT PEST REPORT

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This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG very heavy in 2 wheat fields in southwest Oklahoma. (p. 51).

BACTERIAL PHLOEM CANKER increased on 10-15 percent of walnut trees in area of California. (p. 51).

Detection

● MEDITERRANEAN FRUIT FLY detected in Mexico, just north of the Guatemala border. (p. 54).

New State records include CEREAL LEAF BEETLE in New Hampshire and a LEAFHOPPER in Hawaii (p. 53).

For new county and island records, see page 54.

Special Reports

Distribution of Pear Psylla (map). (p. 55).

Reports in this issue are for the week ending February 4 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Occasional small larva (0.25 inch long or less) in several wheat fields in Caddo County week ending January 28. Three larvae (0.25-0.5 inch long) in one field in Payne County. Current counts per 20 row feet by county: Logan averaged one in one wheat field, Kingfisher 1-5 in 3 of 4 fields, Washita and Caddo occasional larva. (OK Coop. Surv.).

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment continued at Los Gatos, Zapatos, and Jacalitos Canyons, Fresno County. Fog and mechanical problems slowed treatment. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot in scattered small grain fields by county week of January 31: Archer, Baylor, Jones, Wichita, and Young 1-5; Fisher 1-27 and up to 62 in spots in separate counts. (Jackman). OKLAHOMA - Counts per row foot by county week ending January 28: Caddo 0-3 in most wheat, averaged 10 in one ungrazed field; Payne averaged less than one. Current counts per row foot of wheat by county: Jackson, Greer, Harmon, Kiowa, and Tillman 0-15 in most fields checked, up to 115 in 2 early planted, fully tillered fields in Jackson County; Washita and Caddo 0-2 in most fields, up to 15 in occasional fields, Garfield averaged one, and Noble 0.5. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 0-10 per row foot of wheat in southwest counties. Averaged one per row foot in one field in Kingfisher County. (OK Coop. Surv.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 1-3 per row foot in one of 4 fields in Kingfisher County and 2 of 3 fields in Garfield County. (OK Coop. Surv.).

DECIDUOUS FRUITS AND NUTS

DISEASES

BACTERIAL PHLOEM CANCER (Erwinia rubrifaciens) - CALIFORNIA - Many cankers on walnut trees at Visalia, Farmersville area, Tulare County, week ending January 28. Due to late summer rains, disease incidence increased on 10-15 percent of the trees. (CA Pest Rep.).

SMALL FRUITS

INSECTS

GRAPE ROOT BORER (Vitacea polistiformis) - OKLAHOMA - Full-grown larvae heavy in roots of grape planting at Oklahoma City, Oklahoma County, week ending January 28. (OK Coop. Surv.).

ORNAMENTALS

INSECTS

JUNIPER WEBWORM (Dichomeris marginella) - CALIFORNIA - Larvae 3-5 per stem on Juniperus spp. at Garberville, Humboldt County, only known infestation in State. (CA Pest Rep.).

AN ARMORED SCALE (Andaspis hawaiiensis) - FLORIDA - Adults severely infested stems and leaves of Malpighia glabra (Barbados cherry) in nursery at Hialeah, Dade County. Collected by M.J. Corman. Determined by A.B. Hamon. This is a new county record. (FL Coop. Surv.).

A LEAFMINER FLY (Phytomyza vomitoria) - FLORIDA - Larvae heavily infested all 1,000 nursery plants of Ilex vomitoria (yaupon) at Highpoint, Pinellas County, January 28. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Collected from honeylocust and mimosa at Oxford, Sumner County, August 24, 1976. Collected and determined by K.O. Bell. This is a new county record. (Bell).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Averaged 5 per head in beef herd of 35 animals at Williston, Levy County, January 28. (FL Coop. Surv.). OKLAHOMA - Ranged 0-38 (averaged 4.9) per head on dairy cattle in Payne County. Heavy in Craig County. (OK Coop. Surv.).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - FLORIDA - Nymphs and adults heavily infested beef herd of 35 animals at Williston, Levy County, January 28. (FL Coop. Surv.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurytarnus) - ARKANSAS - Moderate on cattle in most areas; controls applied. (Jones).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN ENCYRTID WASP (Ooencyrtus chrysopae) - FLORIDA - Five adults reared from Chrysopa sp. (a green lacewing) eggs collected at Perrine, Dade County, December 28, 1976, by R.B. Schimmel. Determined by E.E. Grissell. Adult encyrtids emerged January 6, 1977. This is a new county record. (FL Coop. Surv.).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Collected from puncturevine near Plevna, Reno County, and near Alden, Rice County, October 1, 1976. Collected and determined by E.F. Martinez. These are new county records. (Bell).

FEDERAL AND STATE PROGRAMS

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW HAMPSHIRE - Two larvae collected from oat field at Concord, Merrimack County, by C.S. Tatham, July 11, 1976. Determined by R.E. White. This is a new State record. (PPQ).

SCREWWORM (Cochliomyia hominivorax) - Total of 2 cases reported from continental U.S. December 26, 1976, to January 15, 1977, as follows: Texas 2. Total of 230 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,910 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 309,208,600, all in Texas. Total of 292,229,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Adults infested 3 properties at San Jose, Santa Clara County. Treatment on south campus of State university at San Jose completed and in area of Sonoma, Sonoma County, 78 percent completed. No infestations found at Sonoma. (CA Pest Rep.).

WEEDS

DUDAIM MELON (Cucumis melo var. dudaim) - CALIFORNIA - Of 3,206 gross acres involved in melon eradication project in Imperial Valley, 1,216 acres released as free of the pest for past 3 years. Eradication continued on remaining acreage and anticipated to be completed by 1982. (CA Pest Rep.).

HAWAII PEST REPORT

New State Record - Single adult female of a LEAFHOPPER (Spangbergiella quadripunctata) first collected at Kalihi, Oahu, by C. Arakaki, November 16, 1976. Two more adults collected from light trap at Honolulu Harbor and at large at Manoa. Determined by J.P. Kramer. This is a new State record. (Beardsley et al.).

Fruits and Nuts - A WHITEFLY (Paraleyrodes naranjæ) light on citrus tree at Ke alakekua, Hawaii Island. Collected by E. Yoshioka and L. Nakahara, January 26, 1977. Determined by S. Higa. This is a new island record. Another infestation later noted at Kurtistown, shows this species to be well established on island. (Shishido et al.).

Man and Animals - Heavy swarms of a SAP BEETLE (Carpophilus humeralis) and DRIEDFRUIT BEETLE (C. hemipterus) at Lanai City, Lanai, January 17-18 caused many nuisance problems. (Jackson et al.). Adults of a LYGAID BUG (Cligenes marianensis) heavy on students and causing nuisance problems in school at Kapaa, Kauai, January 10, 1977. Collected by W. Sonoda. Determined by S. Higa. This is a new island record. (L. Nakahara).

Snail Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity triggered by winter rains during January in all infestation sites on Kauai. Another infestation discovered at Ahukini, Kauai, in mid-January. Snails ranged from young juveniles to adults 4 inches long in 3 to 4-acre area. (Sugawa).

DETECTION

INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Two females trapped at Talisman, State of Chiapas, just north of Guatemala border, February 1 and 3, 1977. First record of spread into Mexico from Central America. All necessary measures undertaken by Mexico and U.S. Dooryard citrus and coffee (now harvested and locally processed) only significant hosts in area. Susceptible commodities not allowed out of area. Regulated area involves 12 square miles. (PPQ).

NEW STATE RECORDS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW HAMPSHIRE - Merrimack County. (p. 53).

A LEAFHOPPER (Spangbergiella quadripunctata) - HAWAII - Oahu Island. (p. 53).

NEW COUNTY AND ISLAND RECORDS

INSECTS

AN ARMORED SCALE (Andaspis hawaiiensis) - FLORIDA - Dade (p. 52).

AN ENCARTID WASP (Ooencyrtus chrysopae) - FLORIDA - Dade (p. 52).

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Sumner (p. 52).

A LYGAEID BUG (Cligenes marianensis) - HAWAII - Kauai (p. 53).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Reno (p. 52).

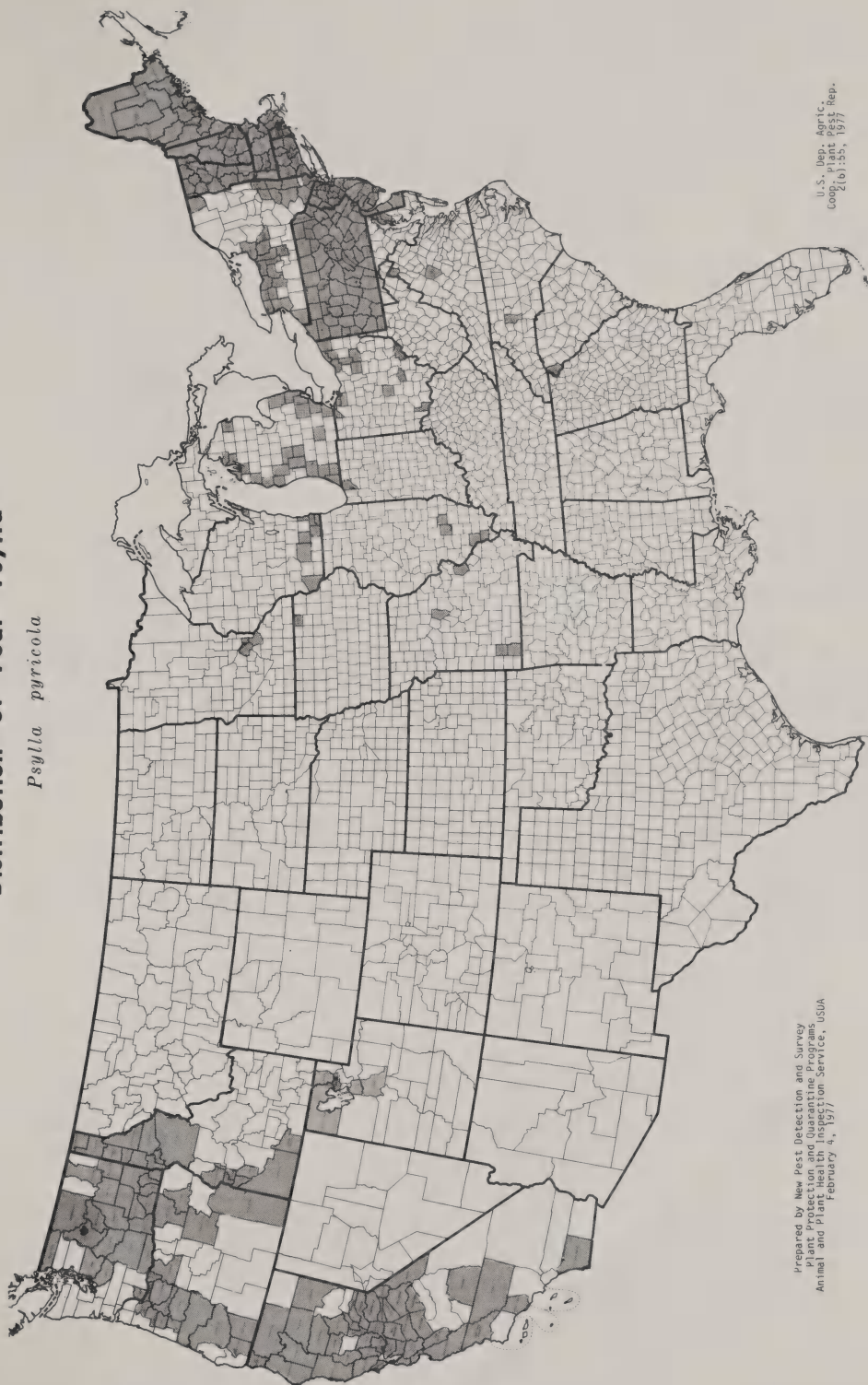
A WHITEFLY (Paraleyrodes naranjae) - HAWAII - Hawaii (p. 53).

CORRECTIONS

CPPR 2(5):38 - SMALLER EUROPEAN ELM BARK BEETLE (Scolytis multistriatus) should read SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus).

Distribution of Pear Psylla

Psylla pyricola



Prepared by New Pest Detection and Survey
 Division, Agricultural Research Service,
 Animal and Plant Health Inspection Service, USDA
 February 4, 1977

U.S. Dep. Agric.
 Coop. Plant Pest Rep.
 2(6):35, 1977

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
<u>Thecaphora solani</u> Barrus a fungus	imperfect	on potatoes from baggage	El Paso	Mexico	CA
<u>Uromyces vicia fabae</u> (Pers.) Schroet. a rust	uredial	on lentil debris from stores	Mobile	Chile	--
<u>Cryptorhynchus mangiferae</u> (Fabricius) mango weevil	adult	in mangoes from baggage	Honolulu	Hawaii	CA
<u>Curculio nucum</u> Linnaeus a weevil	larval	in filberts from mail	Hoboken	USSR	MT
<u>Sipalinus gigas</u> (Fabricius) a weevil	larval	in wood dunnage	San Francisco	Japan	CA
<u>Dichocrocis punctiferalis</u> (Guenee) a pyralid moth	larval	in chestnuts from baggage	Honolulu	Korea	USA
<u>Hylurgops palliatus</u> (Gyllenhal) a scolytid beetle	adult, larval	in wood dunnage	Charleston	Europe	USA
<u>Laspeyresia fagiglandina</u> (Zeller) an olethreutid moth	larval	in beech seed from cargo	Seattle	Italy	WA

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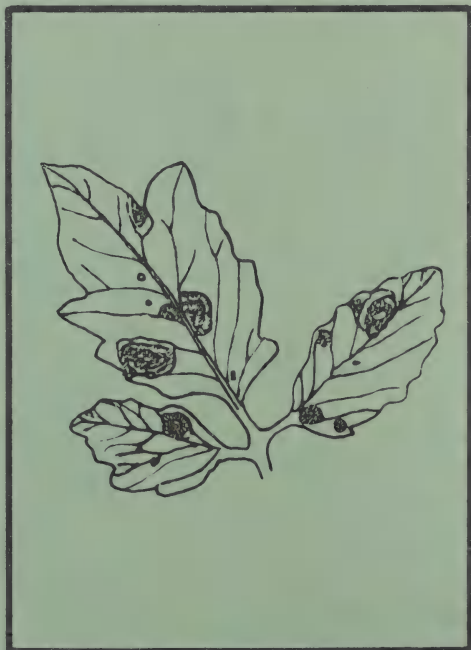
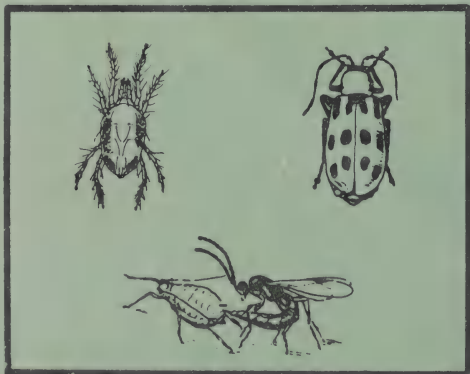
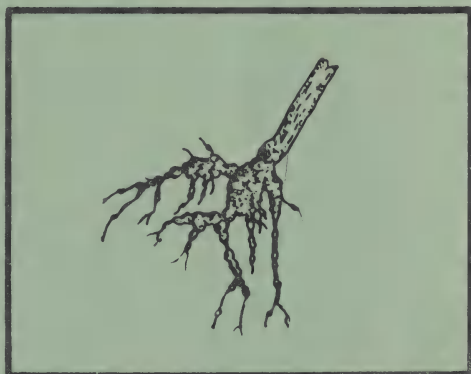
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This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report ^{replaces} supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Detection

A PSOROPTID MITE is new in Florida. (p. 62).

For new county records, see page 63.

Special Reports

Gypsy moth traps placed in 1976. (p. 60-61).

Some First Occurrences of the Season

BROWN WHEAT MITE eggs in New Mexico.

FILBERT BUD MITE eggs in Oregon.

SOUTHERN PINE BEETLE adults in Mississippi.

HONEY BEE in Oklahoma.

Reports in this issue are for the week ending February 11 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Very light on wheat in Washita, Cotton, and Stephens Counties and on oats in Love County. (OK Coop. Surv.). KANSAS - Trace (0.1 per square foot) in one wheat field (3 inches, 7 tillers) in Kingman County near Waterloo. Larvae less than 0.25-0.38 inch; feeding restricted to epidermis of leaves. Larvae (up to 0.5 inch) averaged 0.2 per square foot of alfalfa (one inch) in Harper County field. (Bell).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Fog forced suspension of treatment in Fresno County. Treatment in Imperial Valley, Imperial and Riverside Counties postponed until February 10. Some adults contained as many as 9 eggs. Continual population monitoring necessary for proper timing; start-up time will depend upon weather and maturity. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Counts per row foot of wheat by county: Washita 0-10; Stephens 0-6; Kiowa, Cotton, Comanche, Jefferson, Love, and Ray 0-2; Love averaged 5 in oat field. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 0-3 per row foot of wheat in Washita, Comanche, Jefferson, and Stephens Counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Young colonies moderate on young wheat in Chaves, Lea, and Roosevelt Counties. One or more egg laying adults on one plant in ten. (NM Coop. Rep.). KANSAS - Averaged 2 per plant on wheat (3 inches, 4 tillers) in Barber County field. (Bell).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - KANSAS - Adults averaged 0.2 per square foot of one-inch alfalfa in Harper County near Danville. (Bell).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Light to moderate on alfalfa stubble in San Joaquin Valley, Kern County. Treatment necessary before first cutting. Dry winter conditions apparently aided higher than normal survival rate. (CA Pest Rep.).

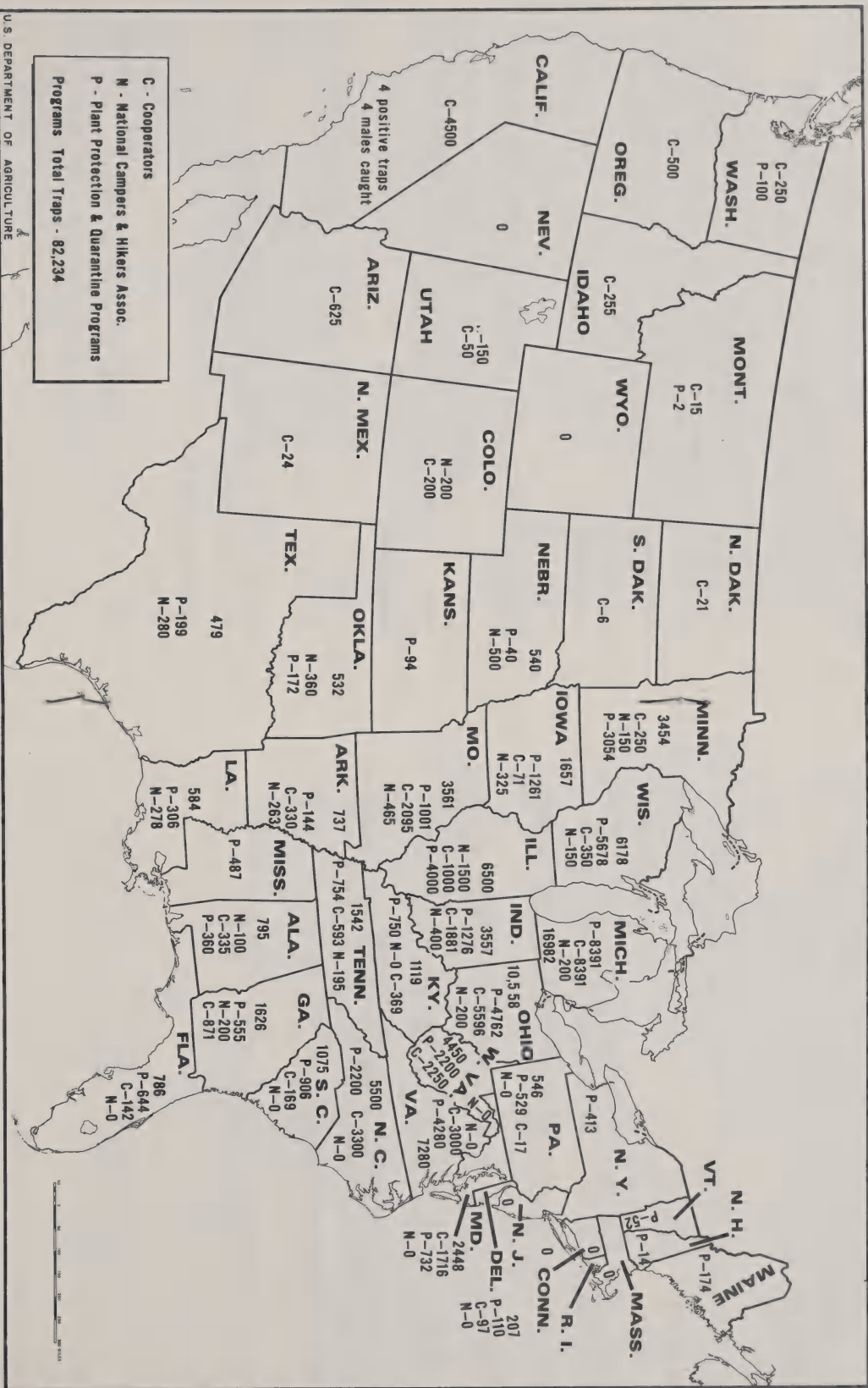
DECIDUOUS FRUITS AND NUTS

INSECTS

GREEDY SCALE (Hemiberlesia rapax) - CALIFORNIA - Nymphs and adults heavy on limbs of pear at Aromas, Monterey County. (CA Pest Rep.).

FILBERT BUD MITE (Phytocoptella avellanae) - OREGON - Light in buds of several hundred hilled-in filbert trees in nursery at Dundee, Yamhill County, February 4. Buds swelling and mites laying eggs. Heavy populations of Kampimodromus aberrans (a phytoseiid mite) present. (Long, Larsen).

GYPSY MOTH TRAPS PLACED IN 1976



ORNAMENTALS

INSECTS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Adults heavily infested all 5,000 miniature carnation plants of Dianthus sp. in nursery at Starke, Bradford County. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - First adults active on pheromone sticky traps in Wayne County pine forest. (Gammill).

MAN AND ANIMALS

INSECTS

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 2 per head on 5 untreated beef animals near Gainesville, Alachua County, slight increase over last period; sharper increase expected. (FL Coop. Surv.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Grubs averaged 2.85 per head in herd of 82, and 3.7 per head in herd of 103 untreated beef cows in Payne County. (OK Coop. Surv.).

A PSOROPTID MITE (Chorioptes bovis) - FLORIDA - One of stress factors in death of calf at Williston, Levy County, December 18, 1976. Calf from native herd of 3 cows and 3 calves; other 2 calves died early in autumn from same symptoms. Collected by F.C. Neal. Determined by J.F. Butler. This is a new State record. This herd near other purchased herds of unknown origin. (FL Coop. Surv.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate on cattle in some areas of Payne County. Cattle infested since early December 1976; tick numbers beginning to decline. (OK Coop. Surv.).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

HONEY BEE (Apis mellifera) - OKLAHOMA - First activity of season in Payne, Wagoner, and Love Counties. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

DISEASES

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - Burning of debris continued at one home in Marin County. Wet logs slowed destruction. Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) underway at Napa, Napa County. (CA Pest Rep.).

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Larvae collected at Appomattox, Appomattox County, and Dillwyn, Buckingham County, by W.D. Jones May 20, 1976. Determined by R.E. White. All are new county records. (PPQ).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Traps removed from deciduous trees with fallen leaves. Traps will be moved back to blooming peach trees. Treatment continued with largest area, Inglewood, Los Angeles County, in seventh treatment. (CA Pest Rep.).

SCREWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. January 16-29. Total of 96 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,252 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 215,821,000, all in Texas. Total of 238,310,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW STATE RECORD

INSECTS

A PSOROPTID MITE (Chorioptes bovis) - FLORIDA - Levy County. (p. 62).

NEW COUNTY RECORDS

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Appomattox, Buckingham, Halifax (p. 62).

CORRECTIONS

CPPR 2(1-4):5,13 - AN ARMORED SCALE (Lecanodiaspis prosopidis) should read A LECANODIASPID SCALE This note is on page 5.

CPPR 2(1-4):6 - A WHITEFLY (Aleurodicus dispersus) - Leon County Collected by F.G. Barker should read Dade County H.G. Barker (FL Coop. Surv.).

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Puccinia tillandsiae</u> Cumm. and Pollack a rust Det. H.L. Rubin	uredial	on bromeliad leaves	Jamaica	Miami	FL
<u>Uredo anthurii</u> (Harriot) Sacc. a rust Det. H.L. Rubin	uredial	on Anthurium leaves	Costa Rica	Miami	NY
<u>Aphthona euphorbiae</u> (Schrank) a chrysomelid beetle Det. R.E. White	adult	with lilac cut flowers	Netherlands	Boston	MA
<u>Ceratitis capitata</u> (Wiedemann) Mediterranean fruit fly Det. R.P. Higgins	larval	in plums from baggage	Argentina	Miami	FL
<u>Lampides boeticus</u> (Linnaeus) a lycaenid beetle Det. R. Kunishi	larval	in Sesbania cut flowers from baggage	Hawaii	Honolulu	CA
<u>Shirahoshizo</u> sp. a weevil Det. D.M. Anderson	larval	in wood dunnage	Japan	Baltimore	MD
<u>Trogoderma granarium</u> Everts khapra beetle Det. R.F. Bollinger	larval	with bales of cotton piece goods	Pakistan	Charleston	SC
<u>Cochlicella barbara</u> (Linnaeus) a helixid snail Det. R.D. Munkittrick	adult	on dried flowers from cargo	Spain	San Francisco	CA



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Cooperative **PLANT PEST REPORT**

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COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG yellowing some wheat in east-central New Mexico. Very severe counts found in another southwest county of OKLAHOMA. (p. 67).

Detection

New State records include SPIKEWEED (p. 69) and TEXAS BLUEWEED (p. 70) in Idaho and 4 ANTS in Utah (p. 71).

For new county records see pages 71-72.

New host records were reported for a NYMPHALID BUTTERFLY and a WHITEFLY in Hawaii. (p. 70).

Special Reports

The Genus Rhopalosiphoninus Baker (Homoptera: Aphididae) in North America. (p. 75-80).

Distribution of Brown Wheat Mite (map). (p. 74).

Some First Occurrences of the Season

EASTERN TENT CATERPILLAR in Florida. Male moths of SPRING CANKERWORM in Kansas.

Reports in this issue are for the week ending February 18 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Late third and early fourth instar larvae light on wheat in Payne County. (OK Coop. Surv.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment continued although weather hampered operations in Fresno County. Control operations terminated because of impending egg laying. Over 4,000 acres treated last period. Control begun in Imperial Valley, Imperial County. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Up to 20-30 per wheat plant in Roosevelt County. Plants showed moderate stress and some yellowing. (NM Coop. Rep.). TEXAS - Counts per row foot of small grains by date and county: February 7--Archer, Baylor, Fisher, Hardeman, Wichita, Wilbarger, and Young 0-8; and February 14--Baylor, Fisher, Hardeman, Wichita, and Young 2-4 aphids, Hardeman 0.6-3.0 parasitized aphids. (Boring). OKLAHOMA - Ranged 10-600 per row foot in several wheat fields at Dill City and Burns Flat, Washita County, increased sharply in past period. Light in Payne County and very light in Pawnee County. Continued light in Jackson, Tillman, Kiowa, Harmon, and Greer Counties; 0-15 per row foot in most fields and up to 25 per row foot in occasional fields. (OK Coop. Surv.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Very light, 0.5 per square foot, on alfalfa in Muskogee County. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - TEXAS - Ranged 0.2-3.0 per row foot of small grains in Wichita County. (Boring).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Heavy, 30 (averaged 10-15) per 2 to 3-inch wheat plant near Ulysses, Grant County, and Tribune, Greeley County. Some damage and treatment. (Bell).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light to moderate on wheat in Major County and light in Kay County. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg averages per square foot of alfalfa by county: Grady 25 and Wagoner 12.4. Adults light in Tillman County. (OK Coop. Surv.).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Nymphs and adults averaged 5 per stem in 100-acre alfalfa field at Tracy, San Joaquin County. Stem mothers averaged 1-2 per stem. Up to 20 individuals per stem, mostly nymphs. (CA Pest Rep.).

DISEASES

PECAN DOWNY SPOT (Mycosphaerella caryigena) - GEORGIA - Strain on pecan tolerant to a carbamate collected from Tift County near Tifton by R. Worley October 15, 1976. Tolerance determined by W. Goff and R.W. Miller. (Miller).

INSECTS

A LECANODIASPID SCALE (Lecanodiaspis prosopidis) - ALABAMA - Collected on ornamental Diospyros sp. (persimmon) at New Hopewell, Cleburne County, by T. Lemons, October 1, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

SMALL FRUITS

INSECTS

AN ARMORED SCALE (Abgrallaspis cyanophylli) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at Eufaula, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at White Oak Creek, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

TERRAPIN SCALE (Lecanium nigrofasciatum) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at Eufaula, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

ORNAMENTALS

INSECTS

A MEALYBUG (Pseudococcus sorghiellus) - ALABAMA - Collected on Solidago sp. (goldenrod) at Eufaula, Barbour County, by B.J. Muse, June 11, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ARMORED SCALE (Hemiberlesia lataniae) - ALABAMA - Collected on round leaf holly at Selma, Dallas County, by L.C. Alsobrook, October 4, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Collected on Rhododendron sp. (azaleas) at Greensboro, Hale County, by J. Deavours, October 12, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

FOREST AND SHADE TREES

INSECTS

PINE TORTOISE SCALE (Toumeyella parvicornis) - ALABAMA - Collected on ornamental Pinus echinata (shortleaf pine) at Leesburg, Cherokee County, by C.H. Ray, August 10, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - Trapped on pheromone-baited stand of loblolly and slash pines in Wayne County. Activity increased. (Anderson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - First larval hatch of season on Prunus spp. (wild plum and wild cherry) at Gainesville, Alachua County, February 15. (FL Coop. Surv.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - First male moths of season flew to lights at Wichita, Sedgwick County, February 9, and at Manhattan, Riley County, February 13. (Bell).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected on deciduous tree at Tuskegee, Macon County, December 4, 1976. Collected and determined by M.L. Williams. This is a new county record. (McQueen).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged 2.15 per head in backs of 73 dairy cattle in Payne County. (OK Coop. Surv.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate on hogs in Muskogee County. (OK Coop. Surv.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Ranged 25-30 per ear on cattle in Okmulgee County. (OK Coop. Surv.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Scattered but heavy on caged layers in Washington County. (Simco, Meisch). Heavy on breeder hens in Independence County. (Jones).

MISCELLANEOUS PLANTS

WEEDS

SPIKEWEED (Centromadia pungens) - IDAHO - Collected east of Lewiston, Nez Perce County, by L. Kambitsch, August 1974. Determined by L.C. Erickson. This is a new State record. (Higgins).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

HONEY BEE (Apis mellifera) - NEW MEXICO - Pollen collecting in full swing in Luna, Dona Ana, and Eddy Counties; brood rearing begun as elm trees burst into full bloom. (NM Coop. Rep.).

FEDERAL AND STATE PROGRAMS

INSECTS

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Traps moved to more favorable host plants in Los Angeles County. Treatment continued with total of 434,384 bait stations placed over 126-square-mile area. (CA Pest Rep.).

WEEDS

TEXAS BLUEWEED (Helianthus ciliaris) - IDAHO - Collected at Twin Falls, Twin Falls County, by W. Savage, July 27, 1974. This is a new State record. Site infested for about 20 years according to farmer. Collected at second site in Twin Falls by R.E. Higgins, August 3, 1975. Site infested for about 6 years. Both determined by D. M. Henderson. Eradication underway (Higgins).

HAWAII PEST REPORT

General Vegetables - Adults of a LEAFMINER FLY (Liriomyza spp.) heavy (80 percent of leaves heavily mined) on acre of tomatoes at Laie, Oahu. (Burkhart et al.). CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate to heavy on 0.25 acre of sugar peas at Wahiawa, on 0.5 acre of pole beans at Waialua, and on 0.25 acre of eggplants at Sunset Beach, Oahu. (L. Nakahara). Eggs and nymphs of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on 0.5 acre of bush beans at Laie and on 0.25 acre of eggplants at Sunset Beach; damage minimal. (Burkhart et al.).

Fruits and Nuts - Several larvae of a NYMPHALID BUTTERFLY (Agraulis vanillae) collected from Passiflora edulis (purple granadilla) and Passiflora suberosa at Manoa, Oahu, January 30, 1977. Collected and determined by J. Beardsley. These are new host records for State. (Beardsley et al.).

Ornamentals - All stages of a WHITEFLY (Orchamoplatus mammaeferus) moderate on Eugenia uniflora (pitanga) and light on Citrus limon (lemon) and Begonia sp. at Palolo, Oahu, by K. Murai and L. Nakahara, February 2, 1977. Determined by S. Higa. These are new host records for State. (Murai, L. Nakahara).

Forest and Shade Trees - STRIPED MEALYBUG (Ferrisia virgata) and CITRUS MEALYBUG (Planococcus citri) light to heavy on terminals and pods of Samanea saman (monkeypod) trees at Ala Moana, Oahu, week ending February 11. Predation by Cryptolaemus montrouzieri (a lady beetle) and Gitonides perspicax (mealybug predator fly) noted. (Beardsley, Higa).

Snail Pests - Total of 6,202 specimens of EUROPEAN BROWN SNAIL (Helix aspersa) collected in eradication effort at Waimea, Hawaii Island, February 4. No new infestation sites outside of treatment area to date. Surveys of interception areas at Koloa and Kalaheo, Kauai, continued negative. (Entomol. Branch, State Dep. Agric.). Juveniles to 4-inch adults of GIANT AFRICAN SNAIL (Achatina fulica) noted in one-acre residential area at Kekaha, Kauai; area treated. Infestations reported at Hanapepe, Poipu, Lihue, Nawiliwili, Ahukini, and Waipouli on Kauai. (Sugawa).

DETECTION

NEW STATE RECORDS

INSECTS

AN ANT (Formica obscuriventris obscuriventris) - UTAH - Collected in Tony Grove area of Logan Canyon, Cache County, by G.F. Knowlton, June 3, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica opaciventris) - UTAH - Collected at Elk Valley, Cache County, July 29, 1976, and at Tony Grove Lake, August 17, 1976, by G.F. Knowlton. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica subsericea) - UTAH - Collected at Ant Valley, Cache County, by G.F. Knowlton, July 6, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Myrmecocystus hammettensis) - UTAH - Collected 31 miles southwest of Park Valley, Box Elder County, by G.F. Knowlton and W.J. Hanson, June 21, 1975. Determined by G.C. Wheeler. (Knowlton).

WEEDS

SPIKEWEED (Centromadia pungens) - IDAHO - Nez Perce County. (p. 69).

TEXAS BLUEWEED (Helianthus ciliaris) - IDAHO - Twin Falls County. (p. 70).

NEW COUNTY RECORDS

INSECTS

AN ANT (Camponotus herculeanus) - UTAH - Collected at Ephraim Canyon (7,500-foot elevation), Sanpete County, by G.F. Knowlton, August 13, 1975. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica altipetens) - UTAH - Collected at Petersboro, Cache County, by G.F. Knowlton, July 25, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica densiventris) - UTAH - Collected among aphids curling leaves of Symphoricarpos at summit of Bear River Range (8,000-foot elevation), Rich County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica subsericea) - UTAH - Collected at summit of Bear River Range (about 8,000-foot elevation), Rich County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Iridomyrmex pruinosus analis) - UTAH - Collected at Green Canyon, Cache County, by G.F. Knowlton, July 5, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Lasius crypticus) - UTAH - Collected in residence at Brigham City, Box Elder County, by G.F. Knowlton and H.E. Collmar, May 2, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Lasius fallax) - UTAH - Collected in "Sinks" area of Logan Canyon, Cache County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Myrmica emeryana) - UTAH - Collected in fir and quaking aspen detritus at Franklin Basin, Cache County, by G.F. Knowlton, September 21, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ARMORED SCALE (Abgrallaspis cyanophylli) - ALABAMA - Barbour (p.68).

AN ARMORED SCALE (Hemiberlesia lataniae) - ALABAMA - Dallas (p. 68).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Hale (p. 68).

A LECANODIASPID SCALE (Lecanodiaspis prosopidis) - ALABAMA - Cleburne (p. 68).

A NEALYBUG (Pseudococcus sorghiellus) - ALABAMA - Barbour (p. 68).

PINE TORTOISE SCALE (Toumeyella parvicornis) - ALABAMA - Cherokee (p. 68).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Barbour (p. 68) and Macon (p. 69).

TERRAPIN SCALE (Lecanium nigrofasciatum) - ALABAMA - Barbour (p. 68).

CORRECTIONS

CPPR 2(7):64 - Cochlicella barbara ... a helioid snail should read a helicellid snail.

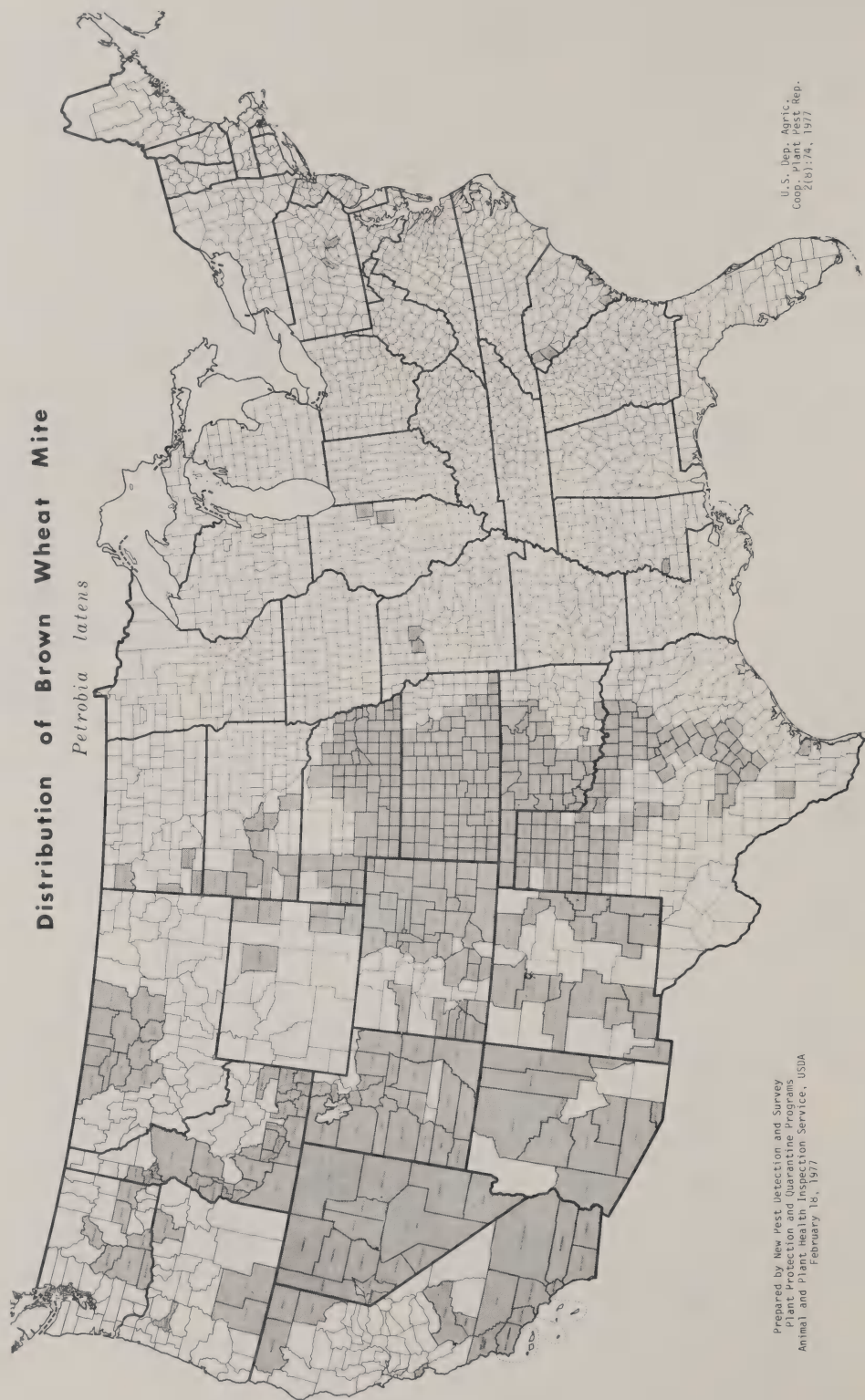
Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Pucciniastrum areolatum</u> (Fr.) Othth a rust Det. F. Pollack	aeial	Germany	New York	NY
<u>Sphaceloma puniceae</u> Bitanc. & Jenkins a fungus Det. J.M. Van Valkenburg	imperfect	Mexico	Brownsville	TX
<u>Hylastes ater</u> (Paykull) a scolytid beetle Det. D.M. Anderson	adult	New Zealand	San Francisco	CA
<u>Lepidosaphes pini</u> (Maskell) an armored scale Det. S. Nakahara	adult	Japan	Astoria	---
<u>Spodoptera mauritia</u> (Boisduval) lawn armyworm Det. D.M. Weisman	larval	Republic of China	Hawaii	HI
<u>Tetropium castaneum</u> (Linnaeus) a cerambycid beetle Det. D.M. Anderson	larval	Poland	New York	NY
<u>Achatina fulica</u> Bowdich giant African snail Det. E.J. Ford	adult	Sudan	Dulles	VA
<u>Helicella conspurcata</u> (Draparnaud) a helicellid snail Det. R. Munkittrick	adult	Greece	Houston	CA

Distribution of Brown Wheat Mite

Petrobia latens



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Service, USDA
Animal and Plant Health Inspection Service, USDA
February 16, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(6):74, 1977

The Genus Rhopalosiphoninus Baker (Homoptera: Aphididae)^{1/}
in North America

Clyde F. Smith and George F. Knowlton^{2/}

ABSTRACT. Keys are given for aptera and alate Rhopalosiphoninus known to occur in North America. R. kelleri, n.sp., is described from Utah.

The genus Rhopalosiphoninus was erected by Baker (1920a:58) with Amphorophora latysiphon Davidson as the type-species. Since 1920, other species have been placed in Rhopalosiphoninus but at this time (1977) they are placed in other genera or in the subgenus Myzosiphon. The valid species or subspecies are:

Rhopalosiphoninus latysiphon (Davidson 1912a:408)

Rhopalosiphoninus kelleri n.sp.

Rhopalosiphoninus (Myzosiphon) solani (Thomas 1879a:73)

Rhopalosiphoninus (Myzosiphon) staphyleae (Koch 1854a:32)

Rhopalosiphoninus (Myzosiphon) staphyleae ssp. tulipaeillus (Theobald 1916g:145)

The following species have been recorded under the genus name of Rhopalosiphoninus and as occurring in North America.

Rhopalosiphoninus ligustri (Kaltenbach 1843a:48) (Theobald 1926a:216) is a synonym of Myzus (Nectarosiphon) ligustri (Mosley 1841a:628) (Eastop and Hille Ris Lambers 1976a:302).

Rhopalosiphoninus nervatus (Gillette 1908c:63) (Börner 1928a:228) is now listed as Wahlgreniella nervata (Gillette) by Eastop and Hille Ris Lambers 1976a:955.

Rhopalosiphoninus persimilis Hille Ris Lambers (1960c:261) is a synonym of Rhopalosiphum (Myzosiphon) solani (Thomas) (Hille Ris Lambers 1966h:609; Eastop and Hille Ris Lambers 1976a:378).

Rhopalosiphoninus rhois (Monell 1879a:27) (Börner 1926a:228) is placed in Rhopalosiphum by most American authors. Eastop and Hille Ris Lambers (1976a:206) place rhois in Glabromyzus.

1/ Paper No. 4971 of the Journal Series of the North Carolina Agricultural Experiment Station, Raleigh, North Carolina.

2/ Contribution of the Department of Entomology, North Carolina State University, Raleigh, North Carolina 27607, and the Department of Biology, Utah State University, Logan, Utah 84322.

Key to Aptera in North America

1. Swollen portion of siphunculus smooth (Fig. 1) 2
- 1'. Swollen portion of siphunculus scabrous (Fig. 2C) . . . R. kelleri, n.sp.
- 2(1). Tip of siphunculus with 4 or more rows of reticulation; antennal segment III without rhinaria; dorsum of abdomen with distinct denticulate reticulation. R. latysiphon (Davidson)
- 2'. Tip of siphunculus with 0-3 rows of faint reticulation; antennal segment III usually with rhinaria; dorsum of abdomen without distinct denticulate reticulation 3
- 3(2'). Setae on antennal segment III (alate) 0.02 mm R. (Myzosiphon) solani (Thomas)
- 3'. Setae on antennal segment III (alate) 0.016 mm or less 4
- 4(3'). Dorsum of abdomen without distinct, solid, sclerotic area, may have sclerotic bars; antennal segment III with 1-2, rarely 0-4 rhinaria R. (M.) staphyleae Koch
- 4'. Dorsum of abdomen with distinct, solid, sclerotic area covering 3 or more tergites on medial area of abdomen; antennal segment III with 2-5, rarely 1-7 rhinaria R. (M.) staphyleae ssp. tulipaellus (Theobald)

Key to Alate Vivipara of North America

1. Tip of siphunculus with 0-3 rows of reticulation (Fig. 1B); antennal segment IV often with secondary rhinaria; dorsum of head denticulate 2
- 1'. Tip of siphunculus with 7 or more rows of reticulation (Fig. 1A); only antennal segment III with secondary rhinaria; dorsum of head smooth R. latysiphon (Davidson)
- 2(1). Setae on antennal segment V, 0.016 mm or less, distinctly shorter than diameter of antennal segment V and usually distinctly shorter than setae on abdominal tergum VIII 3
- 2'. Setae on antennal segment V, 0.02 mm, equal to or longer than diameter of antennal segment V and usually equal to or longer than setae on abdominal tergum VIII R. (Myzosiphon) solani (Thomas)
- 3(2). Antennal segment III with 9-19 rhinaria (spring migrants), others with 12-25 rhinaria, rhinaria not always in single line; dorsum of head between lateral ocelli with few spicules, especially on medial area, noticeably fewer spicules than on antennal tubercles R. (M.) staphyleae (Koch)
- 3'. Antennal segment III with 6-18 rhinaria, rhinaria in single line; dorsum of head between lateral ocelli evenly spiculose, nearly as many spicules as on antennal tubercles R. (M.) staphyleae ssp. tulipaellus (Theobald)

Rhopalosiphoninus latysiphon (Davidson 1912a:408)

Amphorophora latysiphon Davidson 1912a:408.

Since Davidson (1912a:408) described latysiphon from California, it has been recorded from Pennsylvania (Frost and Pepper 1957a:582; Pepper 1965a:215) and Washington (Knowlton 1952b:13; Johansen 1954a:13). We have seen specimens from several localities in North Carolina. The U.S. National Museum has specimens from California, Missouri, North Carolina, Oregon, Pennsylvania, Virginia, and Washington.

Rhopalosiphoninus kelleri, new species^{3/}

Apterous Vivipara

Color of cleared specimens: Dusky on head, all of antennae, legs, rostrum, siphunculi, cauda, and anal plate. Abdomen dark, sclerotic, slightly lighter than legs, siphunculi, and cauda.

Antennal tubercles rugose; vertex of head relatively smooth; antennal segment I and II denticulate; antennal segment III, IV, V, and VI strongly imbricated; setae on antennal segment III, pointed, slightly longer than diameter of base of antennal segment III; base of antennal segment VI with 3-5 setae, two of which are distinctly longer than base of antennal segment VI. Antennae without secondary rhinaria; rostral IV+V with 2 accessory setae. Tarsal chaetotaxy 3-3-2. Siphunculi scabrous on swollen part, reticulated on distal narrow area, scabrous and imbricated on narrow basal portion. Cauda with 4-6 setae.

Measurements in mm^{4/} Body length 2.08 (1.73-2.13). Head width (0.45-0.46). Antennal segment III, 0.41 (0.39-0.42); antennal segment IV, 0.24 (0.20-0.25); antennal segment V, 0.20 (0.17-0.21); antennal segment VI, 0.12 (0.12-0.14) + 0.42 (0.38-0.42). Rostral IV+V, 0.12 (0.11-0.12). Metatibiae, 1.13 (1.0-1.13). Metatarsomere II, 0.10 (0.08-0.11). Siphunculi 0.51 (0.49-0.51).

Host: Unknown.

Holotype: Apterous viviparous female, American Fork Canyon, Utah, August 20, 1974, George F. Knowlton and Clyde F. Smith, deposited in the U.S. National Museum. Paratypes: 5 apterous viviparous females and 1 nymph, same data as holotype, in collections of the authors.

^{3/} Named in honor of Floyd Keller, naturalist and conservationist, who served many years as a naturalist at Glacier National Park and the Petrified Forest National Park.

^{4/} Measurements preceding the parentheses are of the holotype; measurements in parentheses represent variation within the species.

Rhopalosiphoninus kelleri, new species, differs from all other Rhopalosiphoninus known to the authors by the scabrous swollen portion of the siphunculi. The apterous oviparous female of Rhopalosiphoninus maianthemii Stroyan has faint imbrications but is not scabrous.

Rhopalosiphoninus (Myzosiphon) solani (Thomas 1879a:73)

Megoura solani Thomas 1879a:73.

Rhopalosiphoninus persimilis Hille Ris Lambers 1906c:261.

Dr. L.J. Stannard of the Illinois Natural History Museum kindly loaned us the type-species of R. (M.) solani (Thomas). Labels on the slide contained the following information: Left side - "Thomas Aphididae. Megoura solani Thomas now Rhopalosiphum species, Davis det., slide 2772;" (in white), "Carbondale, tomato occidentalis, May 26 '78."

The specimen is mounted on balsam and it is very difficult to see many of the characters clearly and the slide is so thick that it is impossible to use high power.

We have seen specimens of R. (M.) solani from Georgia, Illinois, Iowa, Maine, North Carolina, Pennsylvania, and Washington in the United States and from Fredericton, New Brunswick, Canada.

Rhopalosiphoninus (Myzosiphon) staphyleae (Koch 1854c:32) s.l.
and

Rhopalosiphoninus (Myzosiphon) staphyleae ssp. tulipaellus
(Theobald 1916g:145)

Hille Ris Lambers (1953a:17-28) gives a description and key to R. staphyleae (Koch) s.l., R. staphyleae staphyleae (Koch) s.s., and R. staphyleae tulipaellus (Theobald) s.s. Hille Ris Lambers (1966h:609) states, "R. staphyleae has been introduced into California, probably on tulip bulbs and maintains itself on native plants e.g., Dentaria sp. and Oxalis oregana." Specimens were also collected at Berkeley, California, on Rhaiolepes sp. by C.F. Smith. Hille Ris Lambers also reported R. tulipaellus caught in a Moericke trap in Pennsylvania by J.O. Pepper. Of six specimens observed of Rhopalosiphoninus collected from Pennsylvania by J.O. Pepper, we believe four are R. (M.) solani (Thomas), and two R. (M.) staphyleae ssp. tulipaellus.

Medler and Ghosh (1969a:75) reported the subspecies tulipaellus in suction traps from Nebraska and yellow pan traps from Indiana, Missouri, and Wisconsin. We have not seen these specimens. Specimens we have seen from Wisconsin and Iowa determined as tulipaellus by Medler and Ghosh are R. (M.) solani (Thomas). Essig (1947a:614) reported tulipaellus from California, Oregon, and Washington. Records on slides of staphyleae s.s., we have seen, indicate it has been introduced into California, Illinois, New York, Oregon, Texas, and Washington on tulip bulbs. We have also seen specimens from Wisconsin collected on gladiolus corms.

We have seen specimens of R. (M.) staphyleae ssp. tulipaellus from New York, Germany, and Denmark.

As indicated by Hille Ris Lambers (1953a:17) the differences between staphyleae s.s. and ssp. tulipaellus are slight and single specimens cannot always be identified. R. (M.) solani (Thomas) also falls in this group and may be a subspecies of staphyleae (Koch) s.l.

References

Literature references cited here and not listed below, are in "Bibliography of the Aphididae of the World" by Clyde F. Smith, 1972. North Carolina Agricultural Experiment Station Technical Bulletin No. 216.

Eastop, V.F., and D. Hille Ris Lambers. 1976a. Survey of the world's aphids. Dr. W. Junk b.v., Publishers, The Hague.

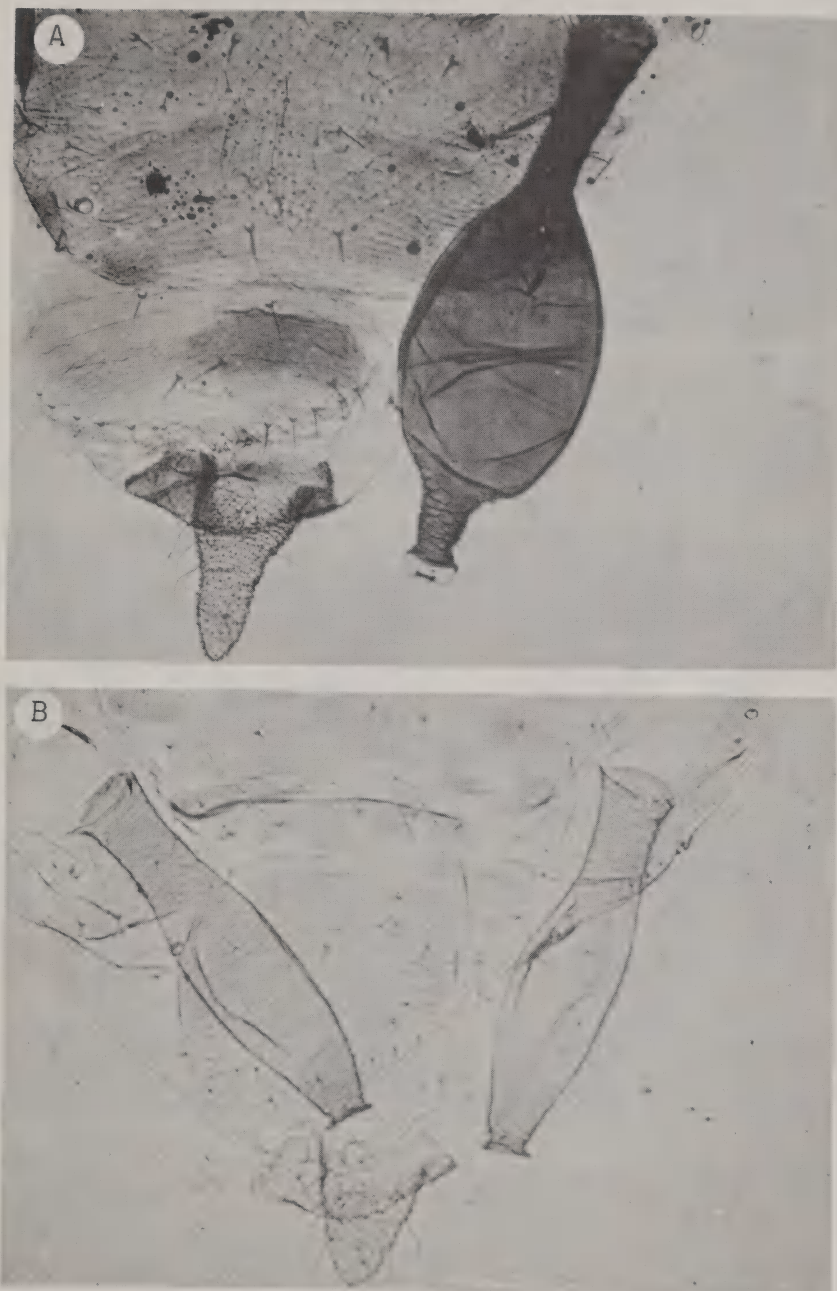


Fig. 1. Siphunculus. A, Rhopalosiphoninus latysiphon; B, R. (M.) staphyleae.

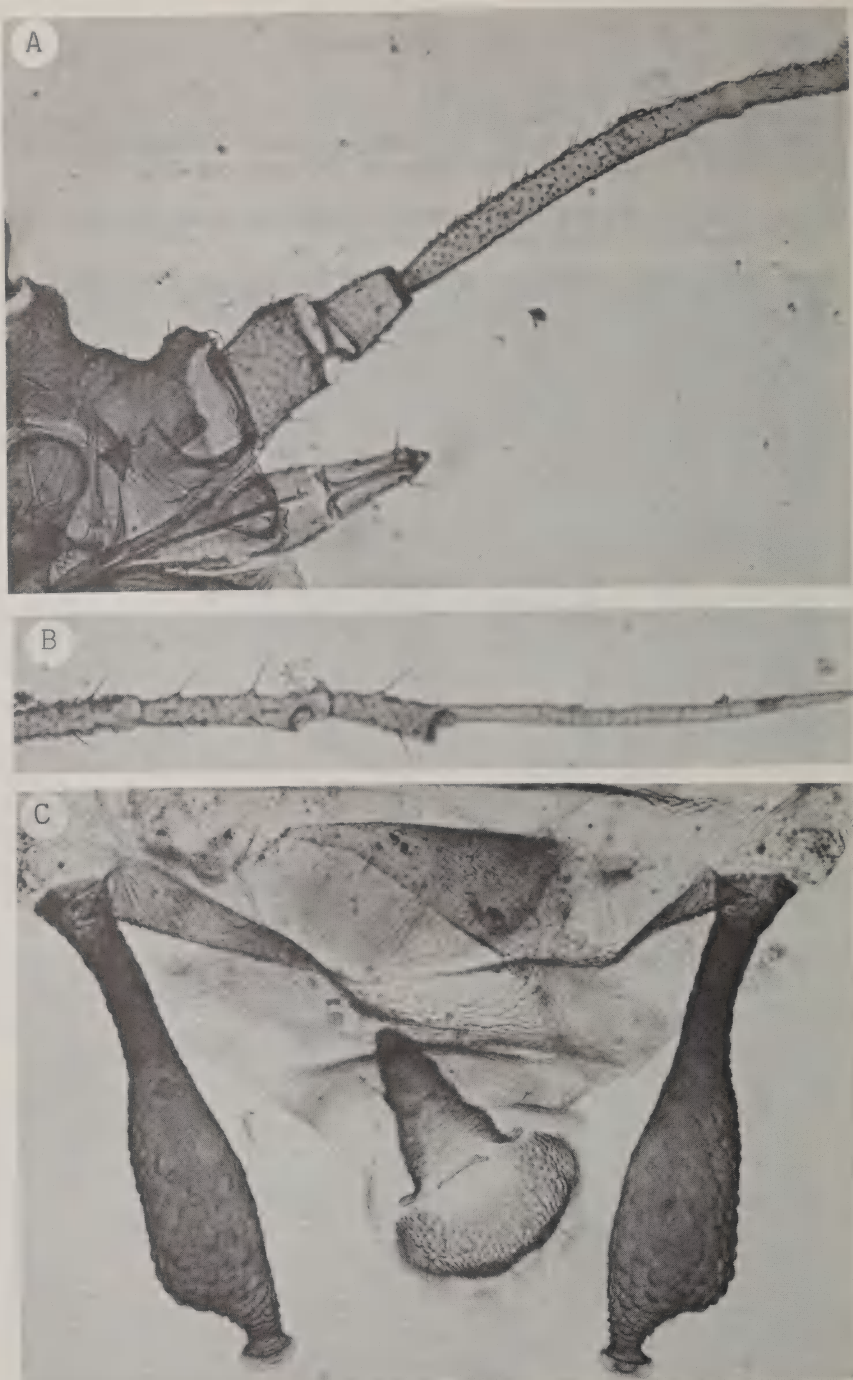


Fig. 2. Rhopalosiphoninus kelleri, n.sp. A, head, antennal segments I, II, and III, and R IV+V; B, antennal segments V and VI; C, tip of abdomen, cauda, and siphunculi.

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(8):75-80, 1977

UNITED STATES DEPARTMENT OF AGRICULTURE
Animal and Plant Health Inspection Service
Hyattsville, Maryland 20782

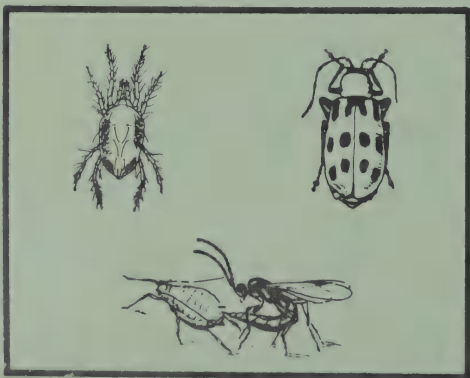
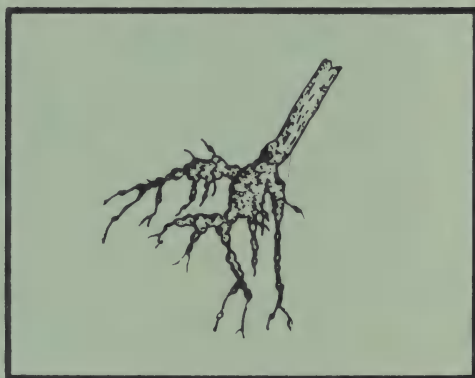
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Cooperative PLANT PEST REPORT



Animal
and Plant
Health
Inspection
Service

U.S.
DEPARTMENT
OF AGRICULTURE



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

DETECTION

See page 85 for a new county record.

New host records reported for an ARMORED SCALE and GREEN PEACH APHID in Florida. (p. 84).

Some First Occurrences of the Season

TOBACCO BUDWORM larva in California. BROWN WHEAT MITE and ALFALFA WEEVIL larva in Oklahoma. GREEN PEACH APHID nymphs in Oregon. ELM LEAF BEETLE adults in New Mexico. FACE FLY adults in Arkansas.

Special Reports

Summary of Pest Conditions in the United States - 1976
Introduction. (p. 87).
Special Pests of Regional Significance. (p. 87-99).

Distribution of Army Cutworm (map). (p. 89).

Distribution of Oldhouse Borer (map). (p. 100).

Reports in this issue are for the week ending February 25 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - NEW MEXICO - Occasional larva found in wheat fields west of Clovis, Curry County. No noticeable damage. (NM Coop. Rep.). OKLAHOMA - Light on scattered wheat in Major, Logan, and Kingfisher Counties. (OK Coop. Surv.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Populations continued to cause moderate stress to wheat in Curry and Quay Counties. (NM Coop. Rep.). OKLAHOMA - Counts per row foot of wheat by county: Jackson, Greer, Harmon, Kiowa, and Tillman 5-30 in most fields checked but up to 200 in spots in 2 fields in northern Jackson County; Major, Logan, and Kingfisher 0-13; Grady 0-10; Stephens 0-5; and Hughes averaged one. (OK Coop. Surv.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - First larva of season on geranium in Fresno County January 19. (CA Pest Rep.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 10-15 per row foot of scattered wheat fields in southwest counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - First of season ranged 10-20 per row foot in wheat field in northeast Kingfisher County. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae 2 per 50 sweeps of 10-inch alfalfa 3 miles north of Quemado, Maverick County, February 9. (Stewart). OKLAHOMA - First larva of season hatched on alfalfa in Jackson and Tillman Counties. Egg averages per square foot by county: Grady 24 on February 17 and Payne 26 on February 18.

DECIDUOUS FRUITS AND NUTS

INSECTS

GREEN PEACH APHID (Myzus persicae) - OREGON - Nymphs began to hatch at Hermiston, Umatilla County. First nymphs on dooryard plantings of peach February 19. (Goeden).

OTHER TROP. & SUBTROP. FRUITS

INSECTS

OLEANDER SCALE (Aspidiotus nerii) - CALIFORNIA - Nymphs and adults moderate to heavy on avocado at National City, San Diego County. About 6,000 individuals per stem. (CA Pest Rep.).

ORNAMENTALS

INSECTS

JUNIPER WEBWORM (Dichomeris marginella) - OREGON - Larval damage appears to be on upward trend on several host species in commercial nurseries in eastern Multnomah County. (Nicolaison).

AN ARMORED SCALE (Abgrallaspis cyanophylli) - FLORIDA - Damage moderate to leaves of 90 percent of 100 Dracaena marginata (sanders dracaena) in nursery at Wauchula, Hardee County, by G.P. Lamb, February 6, 1977. New host record for State. (FL Coop. Surv.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Damaged 50 percent of 100 Senecio rowleyanus (string-of-pearl) in nursery at Avalon, Orange County, by February 17. New host record for State. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - Aerial survey of Choctaw Unit yielded 23 spots with about 1,500 damaged trees in Winston County; Grenada Unit yielded 27 spots with many large damaged areas on private land in Yalobusha County, one private land spot contained about 2,000 damaged trees; Trace Unit contained about 20 damaged spots which involved about 2,500 damaged trees in Chickasaw County. Small percentage of spots ground checked and confirmed as southern pine beetle damage. Principal pine species involved Pinus taeda (loblolly pine) and P. echinata (shortleaf pine). (Honea, Purser).

SPRUCE APHID (Elatobium abietinum) - OREGON - Increased rapidly on spruce in eastern Multnomah County. Early detection and control necessary for successful treatment. (Nicolaison).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Adults active in Luna, Dona Ana, Eddy, and Chaves Counties. Elm trees in full bloom. (NM Coop. Rep.).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - First adults of season in Comanche County. (OK Coop. Surv.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 20 per animal in small beef herd near Gainesville, Alachua County, February 23. Population may reach economic levels in 7-14 days. (FL Coop. Surv.).

FACE FLY (Musca autumnalis) - ARKANSAS - Adults coming out of dormancy and appearing in large numbers in State due to abnormally warm weather. (Jones).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - ARKANSAS - Moderate to heavy in northern half of State. (Jones).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEW MEXICO - Very active on dogs at Las Cruces, Dona Ana County. (NM Coop. Rep.).

HOUSEHOLDS AND STRUCTURES

INSECTS

A WEEVIL (Hexarthrum ulkei) - MICHIGAN - Found in residence at Battle Creek, Calhoun County, by D. Powers, January 24, 1977. Determinations confirmed by D.M. Anderson and D.R. Whitehead. This is a new county record. Damaged pine moulting in damp basement recreation area. Beetle galleries packed with frass. No emergence holes found on finished surface of wood. (Liebherr).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults very active in wheat in several southwest and central counties. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

DISEASES

CITRUS TRISTEZA VIRUS - CALIFORNIA - Removal of diseased trees continued at Lind Cove, Tulare County, week ending February 11. Infected trees increased from 7 to 34; immediate removal implemented. Trees around infected trees retested. (CA Pest Rep.).

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) completed in Napa and Santa Clara Counties, except for Stanford campus. Treatment three-fourths completed in Marin County and will begin this period in Sonoma County. (CA Pest Rep.).

INSECTS

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Treatment continued in Los Angeles County. Status of treatment by area week ending February 25: Hollywood fourth treatment completed, central Los Angeles sixth treatment 60 percent completed, La Crescenta seventh treatment 50 percent completed, Santa Monica sixth treatment completed, Pico Rivera seventh treatment completed, and Inglewood eighth treatment 90 percent completed. (CA Pest Rep.).

SCREWWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. January 30 to February 12. Total of 124 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,233 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 192,529,300, all in Texas. Total of 219,310,900 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW COUNTY RECORDS

INSECTS

A WEEVIL (Hexarthrum ulkei) - MICHIGAN - Calhoun (p. 85).

CORRECTIONS

CPPR 2(7):62 - CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - For Appomattox and Buckingham Counties, larvae were collected by W.D. Jones and D.L. Barnes. Also add collected at Halifax, Halifax County, by D.H. Jones and D. L. Barnes, May 20.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	Life Stage	Host	Probable Origin	Port of Entry	Destination
<u>Elsinoe australis</u> Bitanc. & Jenkins a fungus Det. H.L. Rubin	imperfect	on lemons from baggage	Argentina	Miami	FL
<u>Dacus dorsalis</u> Hendel oriental fruit fly Det. G. Muraoka	larval	in coffee berries from baggage	Hawaii	Honolulu	CA
<u>Maruca testulalis</u> (Geyer) bean pod borer Det. R. Kunishi	larval	in lima beans from mail	Hawaii	Honolulu	CA
<u>Ovalisia</u> sp. a buprestid beetle Det. J.M. Kingsolver	larval	in wood dunnage with steel	Japan	Baltimore	USA
<u>Tomocus piniperda</u> (Linnaeus) a scolytid beetle Det. D.M. Anderson	adult, larval	in wood crates with tile	Spain	San Juan	PR
<u>Placosternus</u> sp. a cerambycid beetle Det. T. Spilman and D.M. Anderson	all	in wood squares	Paraguay	Wilmington	NC
<u>Trogoderma granarium</u> Everts khapra beetle Det. F. Krim	larval	with ship's holds	---	New York	USA
<u>Veronicella moreleti</u> Crosse & Fischer a veronicellid slug Det. R. Munkittrick	adult	on <u>Manihot</u> plants	Honduras	San Juan	PR

INTRODUCTION

The summary of pest conditions, beginning in this issue, will be continued in several succeeding issues of the "Cooperative Plant Pest Report." This summary was compiled by the New Pest Detection and Survey Staff from annual summaries submitted by various State and Federal cooperators. A list of individuals who assisted in assembling data will appear near the end of the last section of this summary. The New Pest Detection and Survey Staff appreciates the assistance of all individuals who have participated in the preparation of material for the 1976 summary.

SPECIAL PESTS OF REGIONAL SIGNIFICANCEHighlights

Treatments for ARMY CUTWORM were applied to about 2,500,000 acres of wheat in western Oklahoma. Populations and damage were the heaviest recorded in 22 years. Scattered economic damage to alfalfa was noted in Nebraska. Treatment for ARMYWORM on tomatoes was needed in southern California. Outbreaks occurred in Ohio, mainly in corn and wheat. Armyworm adults in New York were 10 times greater than normal. In Massachusetts, a devastating infestation occurred. A total of 142,000 acres was treated for BEET LEAFHOPPER in California. CORN EARWORM damaged about 90 percent of the corn ears in untreated plots in Grant and Adams Counties in Washington. Flagging was 80 percent at Artesia, New Mexico. Infestations were heavy on corn ears and tassels in Oklahoma. Peanut defoliation was severe in Florida, South Carolina, and North Carolina. Cotton infestations in North Carolina were the most severe in 10+ years. In Virginia, larvae in most coastal counties had increased about 2-5 times over that in 1975. TOMATO FRUITWORM required 15 or more treatments in Alabama. Infestations of CORN LEAF APHID were continually treated during July in some areas of New Mexico. Populations in Maine were lighter than in the previous 8 years. GREENBUG increased in Oregon for the third consecutive year. Counts and damage in Texas were economic for the first seven months of the year. About 3 million acres of wheat were treated in Oklahoma early in the year. Some young sorghum was destroyed by infestations in several areas of the State. An outbreak was experienced in Kansas with some fields destroyed. Grass was killed in Illinois and Ohio. POTATO LEAFHOPPER infestations were up to 400 per 100 sweeps of alfalfa in Illinois. Because of a late population peak in Indiana, only the third growth of alfalfa generally needed controls. Damage was again heavy in Virginia. SPOTTED ALFALFA APHID was economic on seed alfalfa in Nevada. An infestation was noted in Arkansas after a 2 to 3-year absence. Infestations were unusually heavy in Nebraska in April.

DISEASES

ASTER YELLOWS VIRUS infected 2 percent of the ASTER LEAFHOPPER (Macrostelus fascifrons) population in MINNESOTA during 1976. Collections for indexing were taken from rye at Becker, Sherburne County. This virus infected 5 percent, a significant increase over 1975 levels, of the aster leafhopper population in WISCONSIN.

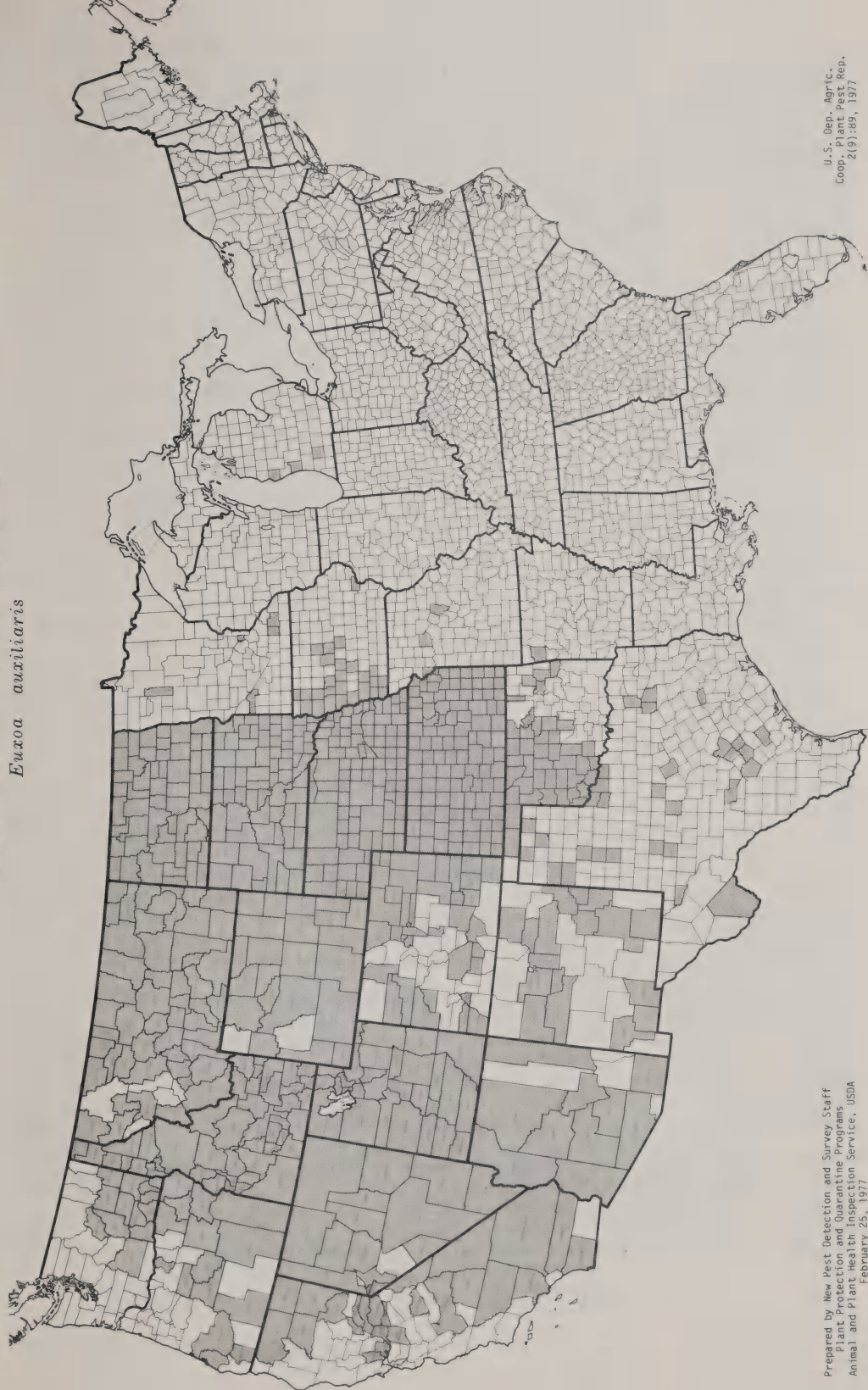
INSECTS

ARMY CUTWORM (*Euxoa auxiliaris*) larvae were first reported damaging winter wheat in Carter and Cascade Counties of MONTANA April 14, 1976. Larvae were taken from a lawn near rangeland at Billings, Yellowstone County, 14 days later. One larva per linear foot of winter wheat was reported at Manhattan, Gallatin County, May 7. Damage to wheat was not obvious but was severe in some alfalfa fields in the same area where larvae ranged 2-15 per square foot over an estimated 3,600 acres. At this point, larvae ranged 0.5-1.25 inches long, the majority near the latter length. Damaging populations occurred in Wichita County, TEXAS, from mid-January 1976 until the end of March with 0.2-1.8 larvae per row foot of small grains throughout that time. Moderate to heavy infestations were beginning to appear in scattered wheat fields in the western half of OKLAHOMA by mid-January 1976. Populations increased rapidly to 3-15 per row foot in many fields during February. Populations varied from field to field with some fields averaging less than one per row foot. Treatments were applied in some areas by late January and over large-scale areas, about 2,500,000 acres, in the western half of the State in February and early March. Little or no treatment in several north-central counties resulted in a number of completely destroyed fields. Overall populations and damage in 1976 were the heaviest recorded in 22 years of survey records. Pupation was underway in Grady County by March 19 and adults were active by the last week of April. Very heavy adult populations were present in the western half of the State during May and early June. Army cutworms also damaged alfalfa in the western half of the State in February and early March. Counts of 2-10 per square foot heavily damaged scattered fields in some areas.

Scattered economic damage by army cutworm was observed in alfalfa (especially first-year stands) in the northwest, southwest, central, east, and northeast crop districts of NEBRASKA. Little damage occurred to wheat in 1976. Most established alfalfa stands recovered slowly. Occasional alfalfa fields were severely damaged in April: One first-year seeding in Hamilton County was 98 percent destroyed, established alfalfa in Chase County had up to 6 larvae per square foot, and one new seeding in Cuming County had 3 per square foot. This species and DINGY CUTWORM (*Feltia ducens*) damaged the borders of sugar beet fields in Scotts Bluff and Morrill Counties May 20. The first adults were observed in Clay and Scotts Bluff Counties the first week of May. Flights were extremely heavy in May and June as adults moved to the foothills of the Rocky Mountains. Infestations on small grains were economic in several south-central counties of SOUTH DAKOTA in 1976. An estimated 10,000 acres of wheat were treated in early May. Larvae, average of one per linear foot, caused some damage to winter wheat in Hettinger County, NORTH DAKOTA, in 1976. Army cutworm severely damaged sunflowers in one area south of Wheaton, Traverse County, MINNESOTA, during 1976. Loss was estimated at 90 percent.

ARMYWORM (*Pseudaletia unipuncta*) infestations on tomatoes in southern CALIFORNIA were light to moderate in 1976; treatments were needed. This species and FALL ARMYWORM (*Spodoptera frugiperda*) damaged late-planted sorghum and sudangrass plantings in Dona Ana and Luna Counties, NEW MEXICO, during mid-August 1976. Light armyworm infestations in wheat were scattered in the north-central and northwest counties of OKLAHOMA from mid-May to mid-June 1976. Some moderate infestations were found in Garfield County. ARMYWORM in ARKANSAS first infested wheat in mid-April 1976 in the northeast area. As usual, infestations peaked in late April. Up to 18 larvae per square foot were noted in some fields in St. Francis County. In some wheat and oat fields, armyworms cut off grain in maturing crops in May. Overall, only a small percentage of wheat and oats required treatment.

Distribution of Army Cutworm *Euxoa auxiliaris*



Prepared by New Pest Detection and Survey Staff
 Agricultural Research Service, Entomology
 Animal and Plant Health Inspection Service, USDA
 February 25, 1977

U.S. Dep. Agric.
 Animal and Pest Rep.
 2(9)59, 1977

Heavy adult flights of armyworm were noted in a Hall County, NEBRASKA, light trap June 20-22, 1976. The first heavy larval infestations on corn were noted in Hall, Merrick, Antelope, Pierce, Knox, Perkins, Clay, and Lincoln Counties July 23-28. First and second instar larvae were estimated at up to 25 per square foot on grassy corn in Antelope and Pierce Counties on July 28. Of 150 fields surveyed in Merrick, Hall, and Buffalo Counties August 4, treatments had been applied to 25 percent. Most heavy infestations occurred in fields with poor control of grassy weeds. Damage decreased by August 15 and was almost completely over 5 days later. Second instar larvae infested barley in NORTH DAKOTA beginning July 23, 1976. No infestations were economic.

Armyworm damaged occasional grassy fields of corn in central ILLINOIS in July and early August 1976 and some late-planted sorghum in the southern area. Infestations were reported from occasional fields of small grain in the southern area by the first week of May. Up to 6 larvae (0.5 inch or smaller) were noted per linear foot of row. By the second week in June, populations were heavy in some southern fields and some grain heads. Losses were estimated at \$400,000, including control costs. Benefits from treatment of 34,000 acres were estimated at \$135,000, over and above dollar losses from control costs and damage. The potential for damage to small grains in 1977 is difficult to predict. Infestations in MISSISSIPPI were first reported on wheat in the last week of April 1976 in Washington, Sharkey, Quitman, and Tunica Counties. Economic damage was light. Damage was light to moderate in isolated corn fields in western and central KENTUCKY from late May to mid-June 1976. No-till corn was more heavily and more frequently infested than conventionally tilled corn. The first adult collected in a Tippecanoe County, INDIANA, blacklight trap was taken March 30, 1976. Flights there peaked on April 24 and July 3. Trap collections reached 1,600 per trap per week. Larvae on roadsides in the southern area were 0.5 inch long by May 12, and were reported from wheat May 28. Similar reports from the north-central area began June 4. All districts had localized infestations in wheat, pastures, and occasionally corn; the northern half of the State had the most infestations. Treatments were applied in some instances, but most infestations ranged 2-3 larvae per linear foot or less. Treatment was needed where occasional head clipping occurred.

Outbreaks occurred all over OHIO during mid-June 1976 in several crops but mainly in corn and wheat. Losses in isolated outbreak locations were heavy, often with nearly complete loss of the crop. As a result, widespread use of chemical sprays to protect corn and wheat was made. Overwintering populations damaged 20 percent of the 110,000 acres of wheat and 30,000 acres of oats in ALABAMA. The most serious damage occurred in the northern area. Treatments were applied to about 5 percent of the acres. Larvae of this species and FALL ARMYWORM (*Spodoptera frugiperda*), appearing in June and July, were more important pests of Coastal bermudagrass and other turf than during the past 10-20 years in ALABAMA. Most damage occurred from July into October with 300,000+ acres treated 1-3 times in control efforts. Infestations were very light on small grains in SOUTH CAROLINA late in the spring of 1976. No appreciable damage was caused. Heavy populations of young armyworms damaged about 1,100 acres of Coastal bermudagrass in Scotland County, NORTH CAROLINA, during mid-July 1976. Reports continued from Coastal bermudagrass in the southern Coastal Plain until mid-August. Infestations ranged from 2 to 30 larvae per square foot with some 50-acre fields stripped. Controls were successful when applied properly.

Third and fourth instar armyworms were present in barley in Westmoreland County, VIRGINIA, February 2, 1976. The early damage was probably caused by the exceptionally warm weather. On May 21, infestations became a problem to small grains in Northumberland County and the City of Virginia Beach, although acreage needing treatment was still small. Scattered damage continued through

May 28 in the eastern area. The first armyworm larvae on corn were detected in Montgomery County, June 4, 1976. On June 14, larvae, 0.75-1.24 inches long, damaged 5 percent of 18 acres of 18-inch tall corn plants in Nottoway County. Infestations in sod-planted corn were less damaging in 1976 probably due to the increasing use of chemical controls. Activity in 1976 was generally below normal throughout MARYLAND and much below the 1975 levels with some localized outbreaks in Dorchester and Caroline Counties. In the Hurlock, Preston, and Vienna areas of these counties, one in 5 wheat fields showed economic levels (one larva per row foot) with yield losses of 1-25 percent. Statewide yield losses in wheat and barley ranged 0-5 percent and fewer than 700 acres needed replanting (some counties had up to 65 percent of the acreage in field corn preplant treated with a broad-spectrum soil systemic insecticide). First-brood adults were heavy the week ending April 30. Adults ranged 40-120 per night in blacklight traps on the Eastern Shore. Subsequent cold weather retarded adult activity. By early May, activity was 2-3 times lighter than the 1975 levels. Infestations were heavy in some areas of Sussex County, DELAWARE, and caused heavy feeding injury to young, late-planted corn during mid-August 1976. Infestations were light, mainly in no-till soybeans, during June and again in August. Heavy damage caused up to 50 percent loss of no-till corn in Centre County, PENNSYLVANIA, in 1976.

Armyworm adults in Ontario County, NEW YORK, light traps indicated heavy activity levels in 1976. The adult catch as of May 18 was about 10 times that of normal. Severe infestations on corn, especially no-till, was reported in Niagara, Wyoming, Wayne, and Sullivan Counties. A major proportion of no-till corn was treated in Sullivan County and about 5,000 acres of wheat were estimated to have been treated in Niagara County. Larval activity requiring treatment was also reported for Rensselaer County. The first adults in MASSACHUSETTS were captured in light traps in the eastern counties on May 18, 1976. A devastating infestation occurred on field corn in Hampshire County June 11. A heavy flight was recorded from blacklight traps in the southeastern counties July 15. Approximately 40-50 adults were captured per trap. Adult counts in blacklight traps in MAINE peaked May 17, 1976, with 137 adults at a research farm in Kennebec County and up to 50 per trap per night in the southern and central areas until the week of June 14 and then decreased sharply. About 500 acres of corn were treated in Kennebec and Androscoggin Counties. In an additional 1,000 acres, infested plants ranged 3-5 percent.

ASTER LEAFHOPPER (*Macrostelus fascifrons*) first migrated into NORTH DAKOTA April 26, 1976, in Richland County. Spring migrants were noted at 2 per 100 sweeps on rye there. Spring migrants were taken on barley in Richland County May 21 at 2.5 per 100 sweeps and in Traill County by June 4 at 3-4 per 100 sweeps. Counts per 100 sweeps ranged up to 23 on barley in Ransom County and up to 24 on wheat in Sargent County by June 11. Populations arrived earlier than usual in MINNESOTA in 1976. An average of 43 per 100 sweeps on rye at Becker, Sherburne County, and 40 per 100 sweeps on winter wheat at Waseca, Waseca County, was noted April 27. Populations decreased as the season progressed, apparently from cold, dry weather, and remained light and noneconomic for the rest of the season. Migrant adults in the 1976 growing season were first detected on winter rye in Dane and Rock Counties of WISCONSIN April 14, 1976. Surveys indicated an early, widespread migration. By mid-May, two per sweep were taken in Waushara County. ASTER YELLOWS VIRUS was present in 5 percent of the *M. fascifrons* population, a significant increase over that in 1975. The high rate of aster yellows virus and the moderate leafhopper populations resulted in a considerable amount of chemical control for the leafhopper in potatoes, lettuce, carrots, and celery. Dry weather during the treatment period resulted in excellent control of the leafhopper and a minimum amount of loss to the vegetable grower.

Aerial treatments for BEET LEAFHOPPER (Circulifer tenellus) were applied to 135,000 acres and ground treatments applied to an additional 7,000 acres in the San Joaquin Valley of CALIFORNIA in 1976. No treatments were needed in the southern desert region. Infestations in sugar beets were generally light in UTAH in 1976. Fall moisture conditions in breeding areas suggested possible above normal populations during the spring of 1977. The first infestations in WYOMING appeared in early spring in Washakie and Big Horn Counties with an average of 0.35 leafhopper per square foot in 1976, compared with 0.46 leafhopper per square foot in 1975. During late May, 36 per square yard infested barley and alfalfa south of Powell, Park County.

CORN EARWORM (Heliothis zea) infestations in corn in WASHINGTON were not as severe during 1976 as in 1975 in terms of numbers of larvae per ear. Untreated plots in Grant and Adams Counties suffered about 90 percent damaged ears. Infestations were unusually light in UTAH until mid-harvest of sweet corn in the northern and central areas when 50 percent became infested. Infestations were earlier and heavier in the southern area. Populations were light in 1976 for the second consecutive year in IDAHO. Little, if any, damage was caused by the first generation. Infestations for 1971 through 1976, peaked on silking corn at Parma at 247, 287, 250, 190, 150, and 151 larvae per 100 ears, respectively. Flagging of corn plants was 80 percent at Artesia, Eddy County, NEW MEXICO, in early July 1976. Some similar damage was observed in Dona Ana County at that time. Treatments in these areas continued through July. Larvae, 1-2 per ear, were found and damage occurred statewide on sweet corn by mid-August. By late August, 1-3 larvae per sheath damaged 75-90 percent of the corn in Quay County.

Heavy corn earworm infestations were found in tassels and ears of corn in most areas of OKLAHOMA from late June to mid-August 1976. Sorghum infestations were heavy in the heads or whorls in scattered areas in the southwest quarter of the State from late July to mid-August. Infestations were present in soybeans in the eastern areas from mid-August to mid-September. Counts of 1-2 per row foot were found in several east-central counties and a number of fields were treated. Infestations were very light throughout NEBRASKA in 1976, except in occasional fields of late-planted corn. Adults were very light in blacklight traps. One third-instar larva was swept from an alfalfa field in Red Willow County May 26 for one of the earliest seasonal records for this insect in the State. Larvae first appeared on ears of corn during early June 1976 in Noxubee and Lowndes Counties, MISSISSIPPI; 25 percent of the ears was infested. Populations increased by mid-August to one plus per ear in these counties. This species was the most important pest of grain corn and grain sorghum in ALABAMA, but only a small acreage of corn received controls. Approximately 10,000 acres of grain sorghum were treated one or more times for this pest along with FALL ARMYWORM (Spodoptera frugiperda) and SORGHUM WEBWORM (Celama sorghiella). H. zea was the more important pest of tomatoes throughout 1976 in gardens and commercial (10,000 acres) plantings in ALABAMA. All fields received 15 or more applications of insecticides per acre in control efforts. The first corn earworm adult was collected in a Porter County, INDIANA, blacklight trap August 6, 1976. Larvae were collected from 4 of 189 fields of corn grown for grain, all in late-planted fields in the southern one-fourth of the State.

Corn earworm infestations were normal in Dade County, FLORIDA, in 1976. This species and FALL ARMYWORM (Spodoptera frugiperda) were the principal insects infesting the ears of sweet corn and were present throughout the Everglades area. H. zea was generally lighter than normal during early June from Alachua County to Jackson County. Damage was less than usual during the second half of June on corn and sorghum. At Hastings, damage was heavy late in the season on corn and sorghum but not as heavy as in past years. Corn earworm was the third most important pest on peanuts, causing losses of about \$372,000.

Corn earworm infestations seemed below normal on general vegetables in some areas of SOUTH CAROLINA in 1976. This species and *S. frugiperda* were heavy in many peanut fields in mid-July. Controls were required and effective when used. Defoliation was greater than 50 percent in some instances. Corn earworm damage was heavy in many sorghum fields. The average yield was reduced by about 5 percent. Defoliation was severe in about 10 percent of the peanut fields in the northern Coastal Plain of NORTH CAROLINA in 1976. Foliar loss was 30 percent with one larva per plant in Edgecombe, Halifax, and Northampton Counties. Egg laying on cotton began August 2-10 in the southern to middle Coastal Plain counties. By August 16-18, infestations 3 times the threshold of 2 larvae per foot of row were detected in 40 percent of the open canopy fields, the most severe infestation observed in 10+ years. Pupation was completed by September 10 in most fields. Many treatments were applied too late; one properly applied treatment was adequate.

Large corn earworms infested 50 percent of the corn plants in 9 Cumberland County, VIRGINIA, fields June 15. By June 18, larvae were feeding in corn whorls in Amelia County. Through June 25, the amount of whorl damage was spotty and insufficient to justify control. Damage to sweet corn ears was more serious and required treatment. By July 2, infestations in whorls were heavier than in the past few years. The insects were also showing up on tassels of corn and in the silk. On August 6, a survey of 30 corn fields (750 ears of corn) in the Tidewater region showed 27.2 percent of all ears of field corn infested and a survey south of the James River showed 39.2 percent of the ears infested, twice as high as in 1975 (21.2 percent). In the middle peninsula, 30.8 percent of the corn was infested compared with 17.2 percent in 1975. The infestation level in the Northern Neck was 11.6 percent compared with 0.3 percent in 1975. Larval survey in corn in Virginia August 6, indicated a high rate of infestation would occur in soybeans. Most larvae in corn were nearing pupation by early August. Samples from 29 soybean fields (597 acres) in Westmoreland County the week before August 27 averaged only 0.3 larva per 30 row feet but one of the fields needed treatment. In Richmond County (26 fields, 736 acres), the number of larvae per 30 row feet was 0.5. Larvae averaged 450 per 30 row feet in 3 fields in Northumberland County. In Westmoreland County where larvae ranged 2-4 per foot of row by August 31, approximately 1,000 acres had been scheduled for treatment. In Isle of Wight County, an estimated 5,000 acres had already been treated. By September 10, two fields in Northumberland County averaged 11 larvae per 30 row feet and in Lancaster County 4 fields (108 acres) averaged 10.2 larvae per 30 row feet. Damage in most coastal counties had been severe but spotty. Larval populations were estimated at 2-5 times heavier than in 1975, confirming predictions made in August. Estimates of acreage treated in 4 areas were as follows: Virginia Beach 10,000 acres, Surry County 3,000-5,000 acres, Caroline County 1,300 acres, and Middlesex County 2,000 acres. By the week ending September 17, damage had peaked. Damage decreased rapidly after September 23 as soybeans matured and cool, wet weather moved in.

Corn earworm and FALL ARMYWORM (*Spodoptera frugiperda*) larvae were very heavy in ears of late-planted corn in several areas of DELAWARE during late August and September 1976. Light trap catches peaked at an average of 120 per night during the last week of August, considerably above the long-term mean peak of 50 per night which usually occurs in early September. Larvae exceeded economic threshold levels during the second week of September. Controls were generally effective in most areas. Heavy blacklight catches of adults in Suffolk County, NEW YORK, indicated a potential for heavy infestations in 1976. The first adults in an Ontario County blacklight trap were caught during the week ending September 18, 3 weeks later than in 1975. The first adult was caught in a blacklight trap in Plymouth County, MASSACHUSETTS, June 23, 1976. Adults were beginning to appear in the eastern counties by July 21. Adults in light traps continued to increase slowly through August. Up to 23 adults were captured the week of August 25 in the southeastern counties.

Corn earworm adults migrated into southern NEW HAMPSHIRE during the summer of 1976, as usual. The first adults from light traps were recorded August 1 at Dover and August 8 at Salem. After Hurricane Belle passed through the southern area in August, light trap collections increased sharply. Larvae hatched by August 20 and infestations, particularly in sweet corn, were reported throughout the southeastern area. Infestations averaged 20-30 percent in some sweet corn fields in Strafford and Rockingham Counties.

CORN LEAF APHID (*Rhopalosiphum maidis*) populations were light to heavy in the late summer of 1976 in the Palo Verde Valley area, Riverside County, CALIFORNIA. Infestations were noted in some spring barley fields in Beaver and Millard Counties, UTAH, in 1976. A field of popcorn in Cache County was heavily infested. By harvest time, lady beetles, minute pirate bugs, syrphid larvae, and other predators had this outbreak under control. Treatments were continually applied during most of July in Dona Ana, Luna, and Hidalgo Counties, NEW MEXICO, in 1976. Some fields showed reddening with up to 30 colonies per leaf during this period. These controls were probably directed at what was thought to be GREENBUG (*Schizaphis graminum*) and when successful reductions were not obtained, many were concerned because of "greenbug resistance." Continued buildups of corn leaf aphid, especially in Chaves County, disguised greenbug populations by mid-July. Subsequent controls tended to reduce parasitoid populations, releasing subsequent greenbug populations in the area.

Corn leaf aphid populations were light to moderate throughout TEXAS until early July 1976 when increases were noted in the Panhandle, High Plains, and Trans-Pecos areas. Up to 400 per colony was noted in the Trans-Pecos area within 14 days. Populations gradually decreased with little or no damage anywhere. Infestations were present in sorghum from early May through August 1976 in OKLAHOMA. Heavy infestations were present in scattered fields in the west-central area by early June and in most other areas from late June to early August. Infestations were moderate to heavy on sorghum in NEBRASKA in 1976. Populations averaged 500-600 per plant in most sorghum fields in the central, south, east, and southeast districts, the last half of July, causing little or no economic damage. The usual confusion between this species and GREENBUG (*Schizaphis graminum*) caused some fields to be unnecessarily treated. Corn leaf aphid in ILLINOIS was first reported from field corn during the last week in June 1976. Infestations ranged 5-10 percent in occasional fields by July 9. During the second week of July, infestations of 20-30 percent were reported from some northern and central area fields. Infestations remained light and scattered for most of the rest of the season. The estimated dollar loss was about \$140,000, including control costs. Benefits of treatment on 8,000 acres for this pest were about \$60,000 over and above dollar losses from control costs and damage. The damage potential for corn in 1977 was impossible to predict.

Individual specimens of corn leaf aphid were noted on about one percent of the corn plants in the southern counties of WISCONSIN by July 1, 1976. By July 8, some fields were found with 80 percent of the plants infested with small numbers of aphids, but on most fields about 5 percent of the plants had colonies of fewer than 10 aphids. By July 22, several southern and west-central corn fields had colonies of 500+ aphids on 20-70 percent of the plants. Honeydew and a sooty mold covered the leaves in many fields. A general population decrease began about August 1, although late-maturing fields continued to harbor heavy populations (500 aphids on 10 percent of the plants) until mid-August. Light residual populations persisted until autumn frosts. Populations in INDIANA on grain corn were light again in 1976. Susceptible corn at the appropriate maturity levels averaged 581 aphids per stalk in 1976, about two-thirds of the 1975 average (935 aphids), in a Tippecanoe County field. During the fall corn insect survey, 25 percent of the stalks were infested: 20 percent lightly,

4 percent moderately, and one percent heavily. Fields in the northern one-fourth of the State were twice as apt to be infested, (1.5 times in the remainder of the north) as in the southern one-half of the State. Except for a few fields in Vermillion County with easily observed populations, sorghum was almost uninfested, an unusual situation. Alates were noted on corn leaves in MAINE July 18, 1976. Counts ranged up to 300 per tassel by July 27, peaked about August 14, and collapsed before August 25. This earlier collapse and lighter populations than in the previous 8 years were believed due to many heavy rains and earlier fungal infections. Heavier populations were noted in about 30 percent of the fields but were lighter than in previous years.

GREENBUG (*Schizaphis graminum*) infestations in wheat were light in January 1976 in Imperial Valley, Imperial County, CALIFORNIA. Some heavy infestations were noted in Palo Verde Valley, Riverside County, in March and April. Populations were generally moderate on milo; treatment in the Sacramento Valley began in June. Light infestations on milo in the Imperial Valley began in August and increased to heavy numbers, particularly in the Palo Verde Valley, Riverside County. Populations continued to increase on eastern OREGON cereal crops for the third consecutive year during 1976. This heavier and more widely distributed population resulted in the treatment of a record 90,000 acres of early seeded wheat and barley in the 5 counties bordering the Columbia River. Infestations developed earlier and were more serious in the eastern counties with treated acreage decreasing westward. An estimated 30,000 acres were treated in Umatilla County. Serious infestations were generally present in irrigated fields around Hermiston in early planted, summer-fallowed fields located between Pendleton and Homan and in higher elevation plantings in the foothills of the Blue Mountains south of Pilot Rock. An estimated 10 percent of the early fall-seeded wheat in Morrow County, between 25,000-30,000 acres, received treatment; most of this wheat was planted in September and October. If the greenbugs present in early December successfully overwinter as in 1975, damage could result during the spring of 1977. The heaviest populations in Gilliam County occurred in the Condon area but problems occurred throughout the county in both early and late-seeded fields with 15,000-18,000 acres receiving treatment. Infestations were present in many plantings in Sherman County, being noted as far south as Kent. Most of the 4,000 acres treated were located in the north end of the county. A similar pattern of infestation occurred in Wasco County with most treated acreage located near The Dalles (Columbia District and Tygh Ridge). An estimated 2,000-3,000 acres were treated countywide. Infestations in cereals in the spring or early summer of 1976 were almost nil in WASHINGTON. Infestations were encountered on all early fall-planted small grains, but populations in most regions from September to November were usually less than one per foot of row. Economic infestations, up to 500 (frequently up to 1,500) per foot of row combined with an APHID (*Rhopalosiphum padi*) were noted in parts of Lincoln, Douglas, Klickitat, Walla Walla, and Grant Counties. Greenbug populations on small grains in Churchill and Pershing Counties, NEVADA, were lighter than in 1975 and although no controls were applied specifically for it, some suppression occurred when treatments were made for ENGLISH GRAIN APHID (*Macrosiphum avenae*). Greenbug populations became economic on small grains in November 1976 in Power County, IDAHO. Infestations were light in Nez Perce, Latah, and Benewah Counties.

Overwintering greenbug populations averaged 1-3 per linear foot on wheat in Clovis and Curry Counties, NEW MEXICO, in 1976. Except for some "hotspots" in the southeastern area, no economic populations were seen until late February when barley at Las Cruces, Dona Ana County, showed some yellowing. In these fields, populations ranged up to 15-18 per linear foot. By March, yellowing was common on wheat and barley in Dona Ana and Luna Counties where up to 40 per linear foot were noted. Populations were up to 50 per foot in Quay and Roosevelt Counties by June 15.

Greenbugs on small grains at the beginning of 1976 in TEXAS were very light but quickly increased to 150-550 per row foot in the Rolling Plains, High Plains, and north-central counties by January 16. By January 30, damage was economic in the south-central, gulf coast, and Winter Garden areas. Populations peaked at 1,000+ per row foot in several Panhandle counties in early April with some counts at 2,000+ per row foot. Populations decreased dramatically during May in all areas due to parasites and predators. Light populations continued for the remainder of the season. Light populations on wheat in the Panhandle in October increased slightly through December. Populations on corn and sorghum were light to very light in the entire southern area from April 1 until June 25 when estimates reached 2,000 per leaf in Bell County. By July 9, populations in the north and Trans-Pecos areas had rapidly increased with populations at 1,000 per plant common. Heavy damage and light parasitism were reported across the High Plains, Rolling Plains, and the Panhandle on July 30. Populations decreased sharply across the north in mid-August with light populations reported after that time. Populations were lighter in the Trans-Pecos area than in the Plains.

Greenbug infestations were present in scattered wheat fields in many of the counties in the western half of OKLAHOMA at the beginning of 1976. Populations ranged 100-1,000 per row foot in many fields during January and increased by February 1. Counts of 1,000-4,000 per row foot were reported in some fields during the month. Parasite activity by early March slowly reduced infestations in most areas, but isolated heavy infestations were reported as late as the end of March. Light populations continued into early May. About 3,000,000 acres were reported treated as the weather permitted during January and February and into early March in some areas. A few instances of poor control were reported in the southwest counties in early February. Fall activity was first reported in mid-September in Texas County. By the end of October, scattered light infestations were present in most areas with counts in some early planted fields ranging 10-25 per row foot. Populations continued light through November. Greenbug infestations on sorghum were first reported in Muskogee County the third week of May. Heavy populations (5-50 per plant) damaged and even killed 2 to 6-inch sorghum in the east-central counties and then in the northeast, north-central, and northwest areas through mid-June. CORN LEAF APHID (*Rhopalosiphum maidis*) and YELLOW SUGARCANE APHID (*Sipha flava*) were also present in most fields and contributed to the damage. Many fields were treated; some in Wagoner County had to be treated 3 times due to rapid reinfestation. Populations increased in all areas during late June and early July and heavy infestations were common in the west-central and Panhandle areas during late July and early August. Parasites reduced infestations in many areas in the southwest counties and contributed to control in other areas by early August. Isolated moderate to heavy infestations continued into early September in some areas.

Greenbugs infested seedling sorghum for the first time in northeast ARKANSAS in early May 1976. Counts ranged up to 10 per plant. Damage was difficult to evaluate due to frost damage. Infestations were favored by dry weather. Greenbug-resistant varieties did not appear to be resistant in the seedling stage. Greenbugs, carrying over from 1975, damaged wheat in KANSAS during the mild winter and spring of 1976, principally in the following counties: Butler, Cowley, Harper, Barber, Sumner, Sedgwick, Kiowa, Haskell, Seward, Clark, Grand, and Stevens. Significant buildups were first noted in the south-central area during the second week of February and in the southwest by early March. Infestations were decreasing in the affected areas from early to mid-April due to treatments, parasitism by *Lysiphlebus testaceipes* (an aphidiid wasp), and predation by lady beetles. Heavy flights caused an outbreak in seedling sorghum during late May and early June. Treating was widespread and some fields

were destroyed by greenbug. In some cases, resistant wheat varieties, planted by many Kansas growers, were seriously damaged. After the heavy flight period, field populations decreased rapidly to light levels, probably due to hot, dry winds. Late season buildups on sorghum first occurred in the southwest area during the third week of July. Threatening to economic infestations were occasionally encountered in the north-central area and throughout the western area during late July. Infestations in all affected areas were generally decreasing due to treatments, parasitism by L. testaceipes, and predation by lady beetles by mid-August.

Greenbugs averaged one per 30 sweeps in Thayer County, NEBRASKA, wheat April 8, 1976. Heavy seedling infestations were first reported in grain sorghum in the southeast, south, and east crop districts June 4. Seedling infestations increased through mid-June when populations stabilized temporarily at 25-30 per plant or decreased slightly in some fields due to hot, dry winds. Greenbugs began to increase about July 5 with rapid increases in most fields by July 20. Populations peaked at 600-2,000 per plant in most areas the last week of July and the first week of August. The first greenbug parasitism by Lysiphlebus testaceipes was noted in Merrick County July 5. In one field, parasitism was noted in about 0.4 percent of the greenbug population. Parasites eliminated greenbugs in most fields by August 10-15 in most districts. One corn stand in Clay County, planted in wheat stubble, had 300 greenbugs per plant August 4. Controls were needed for greenbug infestations in scattered wheat fields in Lancaster County in October. Populations remained light on sorghum in SOUTH DAKOTA in 1976; only an occasional field needed treatment. Infestations rarely reached economic levels on either winter or spring wheat. Populations in 1976 in Champaign County, ILLINOIS, were heavy enough under trees in some lawns to kill the grass. Damage to bluegrass lawns in 2 isolated areas of OHIO in 1976 was severe. Lawns in the Columbus and Dayton areas (Franklin and Montgomery Counties) had light orange portions due to heavy feeding by June 23. This condition persisted in open areas and under trees through mid-July.

POTATO LEAFHOPPER (Empoasca fabae) infested alfalfa throughout ILLINOIS by the first week in June 1976. Populations increased rapidly to 300-400 per 100 sweeps in many fields but did not cause any damage. The estimated dollar loss from infestations was approximately \$190,000 including control cost. Benefits from treatment of 31,000 acres were estimated at \$157,000, over and above dollar losses from control costs and damage. The first migrants into WISCONSIN were found on alfalfa in Lafayette County, May 11, 1976, and additional finds were made in Sauk and Dodge Counties the following week. By late June nymphs were observed on Grant County alfalfa, and adults in the southwest and south-central counties ranged 4-44 per 100 sweeps on second-growth alfalfa. Populations ranging 2-5 per sweep on alfalfa were observed in early August in the northwest counties and throughout the summer statewide, but the effects of leafhopper feeding were masked by drought symptoms. Leafhopper populations were lighter than those observed in 1975 when a high number of fields were treated in the southern area for control. Adults averaged 1.55 per sweep and nymphs 1.33 per stem on first-growth alfalfa in Warren County, KENTUCKY, during July. Nymphs averaged 0.25 per stem and adults 0.16 per sweep on early second growth. On late second growth, nymphs averaged 0.15 and adults 1.16. As the month progressed, nymphs generally decreased but adults were relatively constant on the same stages of alfalfa growth. Adults averaged 1.2 per 20 sweeps of soybeans in Fayette County in mid-September 1976.

Peak populations of potato leafhopper during 1976 developed later in the season than in 1975 on alfalfa throughout INDIANA. As a result, only the third growth in August generally required controls. Early harvesting was sometimes necessary in the second growth, especially where PEA APHID (Acyrtosiphon pisum) was heavy.

During the entire season in more than 60 northern and southern district fields regularly surveyed, potato leafhoppers seldom exceeded 2 per sweep in Indiana. Adults were first detected on alfalfa in OHIO in the west-central area May 10, 1976. Populations remained light through the first half of June (adults 0-28 per 100 sweeps) but sharply increased the third week of June. Adults ranged 16-280 per 100 sweeps in the northern area June 21. Noticeable damage was widespread and chemical controls were being applied by that date. Nymphs were first collected in the west-central area June 29. Heavy populations on untreated second-growth alfalfa yellowed most fields by the first week of July. In the last half of July, populations on third-growth alfalfa peaked, averaging slightly less than the economic threshold of one adult per sweep with light to moderate damage symptoms. Populations decreased during August probably due to frequent rains and cooler than average temperatures. In limited drought areas of the west-central and south-central areas, damage persisted into October. Populations and damage in VIRGINIA were as heavy in 1976 as in 1975, the heaviest in 12 years. Activity was later than in 1975. Infestations averaged 14.8 per 20 sweeps in 8 untreated plots of peanuts.

Most areas in WEST VIRGINIA had little or no damage by potato leafhopper in 1976 and populations were light. Heavy damage was noted in some untreated fields in the northern part of the State. Cool spring weather in PENNSYLVANIA in 1976 kept activity relatively light on alfalfa. Economic thresholds, 0.5 per sweep, were reached statewide in early June. Populations increased up to 10 per sweep in the central counties in early July and caused moderate to heavy damage in most areas. Yellowing was as heavy as 50 percent in some untreated fields. Populations and damage were heaviest in the southern counties. By late August, populations had decreased rapidly to insignificant levels and only about 5 percent of the late alfalfa was yellowed. The first collection of the 1976 season in NEW YORK occurred on June 10 in Tompkins County. Activity increased significantly on potatoes, alfalfa, and dry beans the week of August 2 in this county. Activity ranged moderate to extensive on second-growth alfalfa.

Heavy infestations of SPOTTED ALFALFA APHID (*Therioaphis maculata*), 50 per stem, developed on 1 to 6-inch hay alfalfa in southern Nye County, NEVADA, in late March and early April 1976. Economic populations were noted on seed alfalfa in 2 areas each in Humboldt and Pershing Counties. The first specimens were observed in the latter areas in late June, and by mid-July had increased to 70+ per sweep in some fields, with most treatments applied in July except for one field in Humboldt County which required controls in early August. More than 3,000 acres of mostly seed alfalfa were treated during the year. Infestations were the most damaging to alfalfa seed and forage fields in west Millard County, UTAH, in 1976. Populations of 75-100 per square foot damaged newly planted alfalfa in Eddy County, NEW MEXICO, in late January 1976. Elsewhere, infestations were light. Infestations were light to moderate in alfalfa throughout 1976 in most of OKLAHOMA. Scattered heavy infestations were found in untreated alfalfa in Garvin County in late February and in the southwest counties in late March. Populations in ARKANSAS were light on alfalfa in early September 1976 for the first occurrence of this species in the State in 2-3 years. Infestations averaged 2-3 per sweep in April 1976 in scattered alfalfa fields in Richardson, Otoe, Johnson, Lancaster, and Gage Counties in NEBRASKA. Populations were noted at 20 per sweep in one Greeley County field May 26. No problems were encountered on seedling alfalfa in August and September.

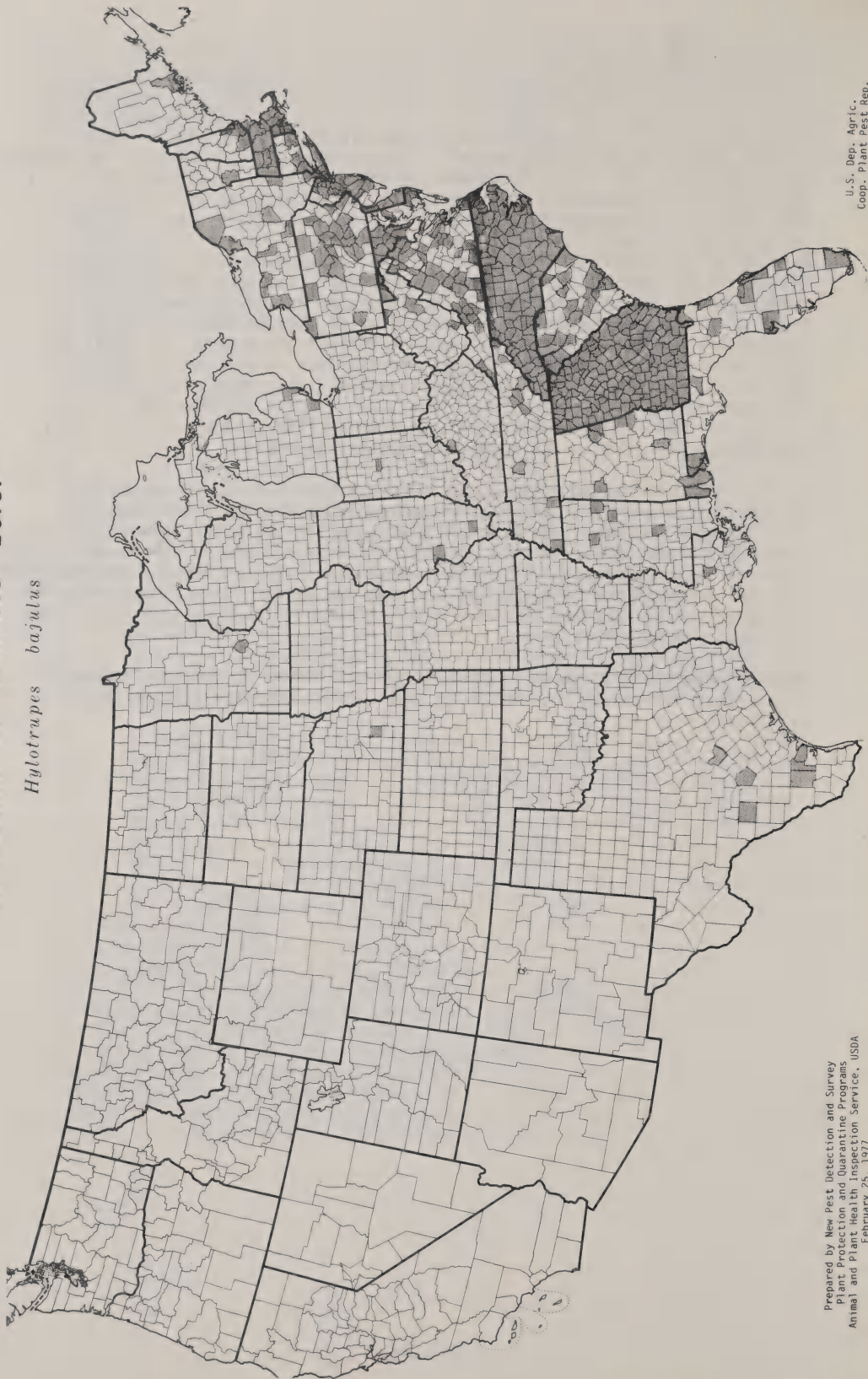
TOBACCO BUDWORM (Heliothis virescens) was the main pest of tobacco in FLORIDA in 1976, causing almost half of the insect losses to flue-cured tobacco and more than half to shade grown. Yield loss totaled \$675,000. Although usually the most important insect pest of tobacco in SOUTH CAROLINA, it was of limited importance in 1976. Infestations were probably the lightest in 10 years. Tobacco budworm infestations peaked in 13 percent of the tobacco fields sampled at the threshold level in NORTH CAROLINA. The heaviest infestation detected was 20 percent of the plants. Larvae were first observed in tobacco fields in TENNESSEE during the week ending July 11, 1976. Populations continued to increase during June. During the week ending July 2, populations in 22 fields were at or above control levels in 16 fields the week ending July 2 and in 10 fields the week ending July 9. Only an occasional field had populations above control levels during the rest of the season. After July 16, budworm populations were found only on blooming and suckering tobacco. Overall damage to tobacco within the State in 1976 was considered to be minimal. Properly applied controls were effective. H. virescens infestations constituted nearly 100 percent of the Heliothis spp. found on watermelon, cantaloupe, and tomato in southeast ARKANSAS in late October 1976. This species and BOLLWORM (H. zea) were up to 2-3 per pod of field peas in October 1976 in the southeast area. Of the species involved, H. virescens constituted 96 percent.

TOBACCO HORNWORM (Manduca sexta) larvae caused very little damage to tobacco in VIRGINIA during 1976. The most important infestations in Nottoway were 3 per 50 plants August 3, and 4 per 50 plants on late-maturing tobacco. Populations of one per 50 plants were observed as early as June 9 in Nottoway County. Tobacco fields monitored in Dinwiddie, Charlotte, and Patrick did not have more than one hornworm per 50 plants at any time during the season. Most hornworms collected during June and September were parasitized by Apanteles congregatus (a braconid wasp).

TOMATO HORNWORM (Manduca quinquemaculata) populations were light to moderate on tomatoes throughout CALIFORNIA in 1976. Counts were heaviest in August; treatments were applied.

Distribution of Oldhouse Borer

Hylotrupes bajulus



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 25, 1977

U.S. Dep. Agric.
Cooperating Plant Pest Rep.
2(9):106, 1977

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VOL. 2 NO. 10

March 11, 1977

Cooperative **PLANT PEST REPORT**



**Animal
and Plant
Health
Inspection
Service**

**U.S.
DEPARTMENT
OF AGRICULTURE**



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

Some heavy counts of ARMY CUTWORM in Nevada. (p. 103).

Surveys for additional infections of SOYBEAN RUST, new disease on soybeans in the Western Hemisphere, negative in Puerto Rico. (p. 104-105).

Detection

● New APHID for North America in Washington. (p. 104).

● New EUCNEMID BEETLE for the United States in Hawaii, not known to occur in continental United States. (p. 105).

New State records include EUROPEAN FRUIT SCALE in Oregon (p. 104), CROWN GALL in Tennessee (p. 104), an APHID in Hawaii (also new host record, p. 105), and WESTERN BEAN CUTWORM in Oklahoma (p. 114).

Some First Occurrences of the Season

ALFALFA CATERPILLAR and IMPORTED CABBAGEWORM eggs in Alabama. CLOVER MITE in Delaware. GYPSY MOTH larvae in California.

Special Reports

Summary of Pest Conditions in the United States - 1976

Corn, Sorghum, Sugarcane. (p. 108-121).

Small Grains. (p. 120-123).

Turf, Pastures, Rangeland. (p. 123-126).

Distribution of Western Corn Rootworm (map). (p. 115).

Distribution of Southern Corn Rootworm (map). (p. 118).

Grasshopper Adult Survey Fall 1976. Map. Centerfold.

Identification of Adults of the Three European Species of Arhopalus--rusticus rusticus, ferus, and syriacus (Coleoptera: Cerambycidae) (p. 127-130).

Reports in this issue are for the week ending March 4 unless otherwise indicated.

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Grasshopper Adult Survey Fall 1976. Centerfold.	

SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (*Euxoa auxiliaris*) - NEVADA - Counts and damage heavy on 150 acres of winter wheat in Elko, Elko County. Counts per square yard by county: Elko 100+ on lawns at Elko with large numbers crawling up sides of structures, and 25+ on 500 acres of range at Spring Creek; Lander averaged 1-2 on range in Reese River. Infested rangeland in Paradise Hill, Humboldt County. (NV Coop. Rep.). TEXAS - Maximum counts of one per 5 row feet of small grains in Wichita County February 21. (Boring). KANSAS - Larvae light (less than one per square foot), clipped wheat plants (2 inches; 2 tillers) in Kiowa County near Greensburg week ending February 25. (Bell).

GREENBUG (*Schizaphis graminum*) - TEXAS - Maximum counts per row foot of wheat by county February 7-23: Hall, Sherman, and Swisher up to one; Briscoe, Childress, and Hale up to 5; and Collingsworth up to 15. (Daniels). Maximum counts per row foot of small grains by county February 21: Archer, Baylor, Childress, Hardeman, Knox, Wichita, Wilbarger, and Young up to 25; and Fisher up to 154 in spots and mean maximum of 100 in a few fields. (Boring). OKLAHOMA - Counts per row foot by county: Washita 0-6 in most wheat, averaged 50 in few fields, and up to 500 in spots; Greer, Jackson, Kiowa, and Tillman up to 215 in few isolated fields, 25-50 in most fields in these counties and Harmon County; Caddo 5-20; Grady 5-20; Woodward 0.5-15; Woods 1-4; Alfalfa 0-2; Grant 0-2; Kay 0-1; and Noble 0-2. Dead spot in Comanche County. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Counts per row foot by county: Jackson averaged 400 in spots in one wheat field, but ranged 0-40 in most fields; Washita up to 100 in few scattered fields; northwest and north-central counties 0-20, very light. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (*Hypera postica*) - OKLAHOMA - Infested terminals averaged about 0.5 percent in alfalfa in southern edges of Jackson and Tillman Counties. Eggs averaged 9 per square foot in samples collected February 25 in Payne County. (OK Coop. Surv.). KENTUCKY - Egg averages per square foot in various alfalfa fields by county: Shelby 2.0, 2.8, 3.2, 4.4, and 8.4 on February 4; Larue 24 on February 9; and Lincoln 9.2, 9.6, 16.0, and 19.6 on February 21 and 23. (Christensen et al.).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - CALIFORNIA - Larvae 10-12 per sweep in Cuyama Valley, Kern County. Lighter in San Joaquin Valley area. (CA Pest Rep.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ALABAMA - Occasional adult in Lee County laying eggs on small clover plants. (McQueen).

BLUE ALFALFA APHID (*Acyrthosiphon kondoi*) - CALIFORNIA - Heaviest counts on alfalfa in Kern County for this time of year. Presence of *A. kondoi* without *A. pisum* was unusual. (CA Pest Rep.). NEVADA - This species and PEA APHID (*A. pisum*) averaged 25 per stem on alfalfa crowns at Lathrop Wells, Nye County, week ending February 18. Will be treated when weather favorable. (NV Coop. Rep.).

COLE CROPS

INSECTS

AN APHID (Lipamyzodes matthiolae (Doncaster)) - WASHINGTON - Collected on Cardaria draba (hoary cress) at Harrah, Yakima County, by L. Fox, November 12, 1976. Determined by D. Hille Ris Lambers. (Fox). New North American record. Known from Europe on crucifers. Probably noneconomic. (Stoetzel).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Occasional adult in Lee County laying eggs on old turnip and collard plants. First adults seen since December 1976, usually noted every week during winter in this area. (McQueen).

GENERAL VEGETABLES

INSECTS

AN ACARID MITE (Tyrophagus dimidiatus) - CALIFORNIA - Ranged 3-4 per spinach leaf at Sanger, Fresno County. Treatment necessary, but normally not a problem in this area. (CA Pest Rep.).

DECIDUOUS FRUITS AND NUTS

INSECTS

EUROPEAN FRUIT SCALE (Quadraspidiotus ostreaeformis) - OREGON - Infested Newton apples collected near Parkdale, Hood River County, by R.W. Zwick during January and February 1977. Determined by R.J. Gill. This is a new State record. Present in area for several years. (Westcott).

FOREST AND SHADE TREES

DISEASES

CROWN GALL (Agrobacterium tumefaciens) - TENNESSEE - Found on Cornus florida (dogwood) at Winchester, Franklin County, February 17, 1977. Collected and determined by R. Sauve and J. Bogard. This is a new State record. (Gordon).

HOUSEHOLDS AND STRUCTURES

INSECTS

CLOVER MITE (Bryobia praetiosa) - DELAWARE - First of season in New Castle County week ending February 25. Infestations in homes unusually heavy this year. (Burbutis).

FEDERAL AND STATE PROGRAMS

DISEASES

SOYBEAN RUST (Phakopsora pachyrhizi Sydow) - PUERTO RICO - Observed on Phaseolus coccineus (scarlet runner bean) at Adjuntas in Limani Valley by N.G. Vakili in April 1976. Observed on nearby plots of Glycines max (soybean) in June; all cultivars infected by August. Infected nearby Phaseolus vulgaris in mid-July; nearly all lines moderately to severely infected by late August. Determined by G.B. Cummins. First report of genus on soybeans in Western Hemisphere and on scarlet runner bean. Serious disease of soybeans in Far East. Infects several genera of legumes in east half of Asia and Australia. (Plant

Dis. Rep. 60(12):995-999, 1976). Additional surveys of soybeans negative to date. (PPQ).

INSECTS

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Forty larvae hatched from one of 2 egg masses caged in sunny location during 3 days last period at San Jose, Santa Clara County. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Activities delayed slightly by rain, but trapping activities on schedule in Los Angeles County. Status of treatment by area week ending March 4: Hollywood fifth treatment completed; central Los Angeles sixth treatment completed; La Crescenta seventh treatment completed; Santa Monica seventh treatment 30 percent completed; Pico Rivera eighth treatment 30 percent completed; and Inglewood ninth treatment 15 percent completed. (CA Pest Rep.).

SCREWORM (Cochliomyia hominivorax) - No cases reported from continental United States up to February 19. Total of 74 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 753 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 71,431,900, all in Texas. Total of 136,236,100 sterile flies released within Barrier of Mexico. (Vet. Serv.).

HAWAII PEST REPORT

New Records - One adult of a EUCNEMID BEETLE (Fornax samoensis Fleutiaux) collected by C. Kendricks, February 20, 1973, and second adult collected by Terashima (no initials), December 7, 1976, both at Manoa, Oahu. Determined by J.W. Beardsley. This is a new United States record, not known to occur in the continental United States. Originally described from Samoa during 1924 and 1925. Larvae of eucnemid beetles occur in rotting wood and under bark. Adults are generally cryptic. (Beardsley).

Specimens of an APHID (Rhopalosiphoninus latysiphon) first collected from Metrosideros collinus (ohia) roots in Keamoku Lava Tube at Keauhou Ranch (1,800-meter elevation), Hawaii Island, by K. Sattler and F.G. Howarth, July 10, 1976. Additional specimens from ohia tree roots in caves at Bird Park, Hawaii Volcanoes National Park (1,200-meter elevation), Hawaii Island. Determined by V.F. Eastop. This is a new State record and a new host record. (Howarth).

DETECTION

NEW NORTH AMERICAN RECORDS

INSECTS

AN APHID (Lipamyzodes matthiolae (Doncaster)) - WASHINGTON - Yakima County. (p. 104).

NEW UNITED STATES RECORD

INSECTS

A EUCNEMID BEETLE (Fornax samoensis Fleutiaux) - HAWAII - Oahu Island. (p. 105).

NEW STATE RECORDS

DISEASES

CROWN GALL (Agrobacterium tumefaciens) - TENNESSEE - Franklin County. (p. 104).

INSECTS

AN APHID (Rhopalosiphoninus latysiphon) - HAWAII - Hawaii Island. (p. 105).

EUROPEAN FRUIT SCALE (Quadraspidiotus ostreaeformis) - OREGON - Hood River County. (p. 104).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - OKLAHOMA - Cimarron County. (p. 114).

CORRECTIONS

CPPR 2(7):60-61 - GYPSY MOTH males were trapped in other States besides California.

LIGHT TRAP COLLECTIONS

CALIFORNIA - Bellota, 2/22-24, BL - BLACK CUTWORM (Agrotis ipsilon) 2, VARIEGATED CUTWORM (Peridroma saucia) 6. Stockton, 2/22-24, BL - Black cutworm 2, variegated cutworm 15. FLORIDA - Gainesville, 2/24-3/2, BL - ARMYWORM (Pseudaletia unipuncta) 1, CABBAGE LOOPER (Trichoplusia ni) 1, GRANULATE CUTWORM (Feltia subterranea) 7.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Phylllosticta sp.</u> a leaf spot Det. F. Pollack	imperfect	Mexico	Brownsville	TX
<u>Monochamus sp.</u> a cerambycid beetle Det. D.M. Anderson	larval	Spain	Savannah	GA
<u>Nasutitermes sp.</u> a termite Det. D. Smith	all	South America	Savannah	USA
<u>Saperda sp.</u> a cerambycid beetle Det D.M. Anderson	larval	Japan	San Francisco	CA
<u>Stenoma catenifer</u> Walsingham avocado seed moth Det. R.P. Higgins	larval	Ecuador	Miami	FL
<u>Trogoderma granarium</u> Everts Khapra beetle Det. F. Krim	adult, larval	Sudan	New York	USA
<u>Helix aperta</u> Born a helicid snail Det. D. Walters	adult	Italy	Kennedy Airport	USA
<u>Otala sp.</u> a helicid snail Det. R. Munkittrick	adult	Spain	Miami	FL

SUMMARY OF PEST CONDITIONS IN THE UNITED STATES - 1976
(Continued from page 99)

CORN, SORGHUM, SUGARCANE

Highlights:

The corn crop in Nebraska was threatened by overwintering populations of EUROPEAN CORN BORER. Several corn fields in South Dakota were totally infested. Infested plants and borers per 100 plants decreased in North Dakota. Heavier populations in Iowa only caused sporadic damage to field corn. Poorly timed treatments in New Hampshire caused 95+ percent infestations. Second generation infestations of SOUTHWESTERN CORN BORER in corn were heavy in Texas and Cimarron Counties of Oklahoma. FALL ARMYWORM infestations were very heavy in some areas of Oklahoma and economic in the southern counties of Mississippi. Unusual BEET ARMYWORM infestations were noted on corn in Florida. BLACK CUTWORM damage was more widespread in Iowa. The estimated dollar loss in Illinois due to emergency treatment and yield loss was about \$3 million. Damage was severe in scattered corn fields of North Carolina. Severe infestations on corn throughout New York caused many fields to be replanted. More WESTERN BEAN CUTWORM damage was reported in Nebraska. STALK BORER infestations were unusual in Indiana and caused replanting of no-till corn in Pennsylvania. CORN ROOTWORMS seriously damaged corn pollination in Idaho and severely pruned corn roots in Nebraska. Problems were severe on field corn in Iowa. Populations increased in 5 districts in Minnesota. Western corn rootworm was heavy in many corn fields in Wisconsin; severe problems are expected in 1977. Northern and western corn rootworms caused about \$40 million loss in Illinois. Western corn rootworm extended its range by 15 counties in Indiana. Heavy northern corn rootworm populations in Pennsylvania may indicate important infestations in 1977. BILLBUGS were of major concern to corn growers in the southern Coastal Plain and Tidewater areas of North Carolina. CHINCH BUGS were unusually heavy and damaging in eastern Kansas and southeastern Nebraska. YELLOW SUGARCANE APHID and other aphids caused much damage in Oklahoma. Populations were heavier and more widespread on sorghum in Arkansas and Kansas. TWOSPOTTED SPIDER MITE problems to field corn in North Carolina have expanded from the northern coastal counties. Controls were needed for field corn in Virginia. This mite and BANKS GRASS MITE infestations were particularly widespread and damaging to corn in 4 districts of Nebraska.

DISEASES

Spotty outbreaks of COMMON MAIZE RUST (*Puccinia sorghi*) were observed in Roosevelt County, NEW MEXICO, during early September 1976.

INSECTS

EUROPEAN CORN BORER (*Ostrinia nubilalis*) larvae, about one inch long by August 13, 1976, caused problems in sweet corn in Yellowstone County, MONTANA. By September 24, the larvae had damaged about 25 percent of the corn in one field and up to 50 percent in another. Very heavy overwintering populations in NEBRASKA threatened the 1976 corn crop. The first adults of the season began emerging May 9 in Dixon County. Emergence was estimated at about 20 percent in York, Merrick, and Fillmore Counties; 10 percent of the females had mated by June 3. Emergence was estimated to be 70 percent in Hall County on June 8. Subsequent hot, dry winds severely reduced the potential for heavy

first generation *O. nubilalis* by increasing adult mortality, decreasing egg laying, and desiccating eggs and young larvae. Damaged corn was noted in the earliest planted fields but few needed treatment. Infested plants averaged 30 percent in Merrick, Hall, York, and Fillmore Counties June 21; corn was 28-45 inches tall. Infestations ranged 0-75 (averaged 6-8) percent in 52 fields in Wayne, Stanton, Cedar, Knox, and Pierce Counties June 30. First generation pupation was underway and some adults began appearing at blacklight traps in the northeast and central districts July 21. In Dixon County, 800+ adults were trapped August 2 and 3. Infested plants ranged 0-24 percent in late-planted corn in Antelope, Pierce, and Cedar Counties August 10. At the same time, adult catches decreased in Dixon County. Second generation infestations ranged up to 26 percent in Hall, Buffalo, Adams, Merrick, and Nance Counties August 6-10. As indicated by fall surveys, infestations were much lighter than in 1975. The heaviest infestations were found in the east and central districts where borers averaged 3.2 and 2.1 per plant, respectively. Good harvest conditions allowed growers to remove the crop before significant losses due to ear droppage and stalk breakage occurred.

First brood infestations in SOUTH DAKOTA were heavy in irrigated corn in Clay, Union, Turner, and Lincoln Counties in 1976. Several fields were 100 percent infested with up to 20 egg masses per plant. Borer survival in corn with less than 20-inch extended leaf height was common. First brood resistance appeared to be minimal. Up to 20 bushels per acre were lost in several fields. The fall survey in the southeast district showed 51 percent of the plants infested. Infestation ranged up to 75 percent in irrigated corn. Winter survival in NORTH DAKOTA averaged 75 percent in untilled corn in Cass, Dickey, Ransom, Richland, and Sargent Counties in 1976. The fall survey showed a decrease in these counties from 34 borers per 100 plants in 1975 to 25 borers per 100 plants in 1976. The percent of plants infested also decreased from 56 percent in 1975 to 39 percent in 1976.

European corn borer was heavier in 1976 than in 1975 in IOWA but caused only sporadic damage to field corn. The first adults were detected during the week ending June 11. Adults peaked during the second week in June. Egg laying peaked about June 13. The first reports of damage to field corn were noted during the week ending June 25 in Ida, Plymouth, Polk, and Woodbury Counties. Larvae in the second and third instars infested 2-80 percent of the stalks. Heavy rains in the central area decreased the remaining adult population. Larvae, 50 percent full grown, were reported from Davis, Henry, and Woodbury Counties during the first week in July, but few fields needed chemical treatments. Late instar larvae were observed in Boone County during the week ending July 23. Second generation adults were first detected during the last week in July. Flight activity peaked about August 4 in the central counties. Sporadic light feeding damage occurred statewide. The fall survey indicated 65 percent infestations statewide with an average of 122 borers per 100 plants, representing a slight increase in infested plants (from 59 percent) but a decrease (144) in numbers of borers from 1975. The greatest potential for first generation European corn borer damage in 1977 exists in the western one-third of the State.

Winter survival of European corn borer in MINNESOTA was 93 percent in the southwest, south-central, and southeast districts. Fall populations (averaged 64 per 100 corn plants statewide) decreased from the 1975 levels in the northwest and west-central districts, possibly due to very dry weather. Populations remained about the same in the east-central district and increased in the central, southwest, south-central (averaged 151 per 100 plants), and southeast districts. Very heavy light traps catches of second generation adults in 1975 did not give rise to the expected heavy first generation in

the spring of 1976. Overwintering European corn borer larvae were heavier in some districts than in previous years. Larval survival in April 1976 ranged 92-100 percent in all fields surveyed in WISCONSIN. Pupation began at Beaver Dam, Dodge County, by May 4. Adults began emerging about May 25. Adult activity peaked about June 7 in Dane and Waushara Counties and about June 15 in Fond du Lac County. Egg laying began about June 10 and continued until July 16 due to favorable weather, with the result that by July 16, all stages were present. Pupation was first noted in Eau Claire and Sauk Counties July 16. First generation larvae infested up to 33 percent (averaged 8-16) percent of the plants. The second adult flight began about July 23 at advanced southern sites and peaked about August 11. Some egg masses were evident by August 6 at southern sites, most eggs were laid on late sweet corn. In most instances, only about 4 percent of the plants had eggs, but rare individual fields at harvest had up to 50 percent of the ears infested with small larvae. Sweet corn growers applied chemical controls in a relatively small percentage of their fields. The fall survey of grain corn in September showed 19 percent of the plants infested and 23 larvae per 100 plants, about the same as in 1975 (22 per 100 plants) and well below the 30-year average of about 45 per 100 plants.

Overwintering survival of European corn borer was 88 percent in the northwest district of ILLINOIS as of mid-April 1976. Development was ahead of normal. Pupation was well along and adults were emerging in the southern counties. With development well ahead of corn in the southern counties, problems were expected only in early planted fields. By the second week in May, pupation was 28 percent in the central counties with no adult emergence and no pupation in the northern areas. By June 11, adult emergence was nearly completed in the southern one-half of the State and was 52 percent completed in the northern counties. Egg masses and whorl feeding were found during a northern area egg mass survey the last week of June. Populations were mostly light and only occasional fields had 50 percent or more whorl feeding as of the first week in July. In the northern area, treatment was warranted in some early planted fields before July 9 and adults were flying during the third week of August. The estimated dollar loss from European corn borer was about \$960,000, including treatment cost. Benefits from treatment of 60,000 acres were estimated to be about \$418,000, over and above losses from yield reduction and control costs. The heaviest counts were in the northwest and west districts with 4.9 and 9.5 borers per 100 plants, respectively, in the first brood survival survey and with 67 and 73 borers per 100 plants, respectively, in the fall survey. The greatest potential for damage to field corn in 1977 appears to be in these 2 districts; damage in these areas is expected to be light to moderate.

First generation European corn borer infestations ranged 20-45 percent in the second half of June 1976 in corn fields of 16-30 acres in central KENTUCKY. Pupation was almost completed by May 12, 1976, in southern INDIANA. The first adult collected in blacklight traps was taken in Randolph County May 16 where first generation flights peaked May 31 and second flights peaked August 4; second generation flights started on July 16 with good numbers present until August 19. The State averaged 3.1 larvae per 100 stalks in the July survey, with the heaviest populations in the north-northeast area (8.2 per 100 stalks), the south-southwest (7.7), and the south-southcentral (6.6) districts, agreeing with the fall survey results. In that survey, the State averaged 37 larvae per 100 stalks, with the heaviest populations (70-72 per 100 stalks) in the same districts. Adult flight activity began in

OHIO in Wayne County on May 19, 1976, the earliest European corn borer adults were ever caught in blacklight traps at this location. The catch was 14 days earlier than the 10-year average date of first catch. Damage to corn by first-generation larvae was light statewide except for the northeast area where damage was moderate to heavy. Infested plants ranged 34-90 percent in the northeast counties and 0-30 percent for the rest of the State. The heaviest infestation averaged 4 larvae per plant in Wayne and Stark Counties July 13. By early September in the northeast area, 6-60 (average 30) percent of the corn plants was infested with up to 168 (average 48) larvae per 100 plants. Infestations in the rest of the State averaged 0-16 percent with a maximum of 28 larvae per 100 plants.

European corn borer infestations were estimated at 10 percent in field corn in the Coastal Plains of VIRGINIA August 6, 1976. By October 8, heavier damage was observed in many fields during harvest. Pupation of the overwintered larvae in DELAWARE was 10 percent by March 29, 1976, and 50+ percent by April 20. The first adults of the season were collected in blacklight traps during the third week of April and pupation of overwintered larvae was 90+ percent by the first week in May. Egg masses were noted on corn, weeds, and potatoes in the second week of May when adults averaged about 2 per night in trap collections. Adult flights remained unusually light throughout May, June, and early July. Infestations in early planted corn were light in most areas. Flights of the second generation peaked about July 20, populations were not heavy, 10+ per night, until mid to late August. Infestations in corn were much lighter than in 1975, averaging only 40 percent statewide. Statewide in the fall survey, European corn borer averaged 85 per 100 plants, much lighter than the 389 average in 1975. European corn borer adults of the overwintered generation began to emerge in southern PENNSYLVANIA in mid-May 1976 and continued through mid-July in the northern counties. Larval damage to tolerant varieties of corn was negligible in spite of heavy populations in some areas (12 per 20 stalks in Cumberland County and 21 per 20 stalks in Green County). The second flight seemed to be a partial flight in the northern counties. The southern counties had a more complete second flight which peaked in the third and fourth week of August. In general, this pest was only important in the sweet corn crop in 1976.

European corn borer adults in MASSACHUSETTS first appeared in light traps in the eastern counties June 1, 1976. The first generation was underway in the southeastern counties by mid-July, infesting a lot of corn being harvested at that time. Large numbers of adults continued to be captured in light traps in the southeastern counties in early August. By mid-September, larvae were very common in gladiolus spikes in the southwestern counties and in corn statewide. Adults in NEW HAMPSHIRE were first observed in corn fields during early June 1976. Adults were laying eggs by June 10 and first instar larvae were observed in sweet corn more than 6 inches tall. Damage to field corn was insignificant due to adequate treatment, but sweet corn was heavily infested during late June and early July, especially in the southeastern and central parts of the State. In early July, infestations were 95+ percent in Rockingham County, particularly where insecticide treatments were poorly timed.

Second generation infestations of SOUTHWESTERN CORN BORER (Diatraea grandiosella) in corn in Texas and Cimarron Counties, OKLAHOMA, ranged 4-100 percent in mid-October. Girdled stalks averaged 36.6 percent and lodged stalks averaged 28.3 percent. These heavy counts may be partly due to heavier than normal survival of the overwintering population during the relatively mild winter of

1975-1976. Infestations were serious on corn in KANSAS, particularly in the south-central and southwest districts in 1976. Surveys showed the southwestern corn borer made substantial inroads in the southwest district in 1976. About one-third of all corn in the State is produced in this area.

The infestation density of SUGARCANE BORER (Diatraea saccharalis) in sugarcane in FLORIDA decreased slightly in 1976. The average number of cane joints infested was 6 percent in 1976 as compared with 8 percent in 1975. About 60,000 acres needed treatment.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were generally erratic but caused some spot damage to sweet corn in the Everglades area of FLORIDA in 1976. Soil insecticides, as normally applied for WIREWORMS, were only partly effective against lesser cornstalk borer. Overall infestations were not as bad in 1976 as in 1975 on corn in Alachua, Gilchrist, and Levy Counties. The wet spring of 1976 helped to produce good corn yields.

FALL ARMYWORM (Spodoptera frugiperda) infested sorghum from late June to mid-September 1976 in OKLAHOMA. Very heavy infestations had developed in some areas by mid-July and were common, especially in the southwest and west-central counties, from late July to early September. Infestations ranged 10-50 per row foot in Washita County in mid-August and some damage to sorghum heads was reported in the southwest area. Infestations on young sorghum in ARKANSAS occurred as early as mid-June 1976 in the southern area and in early July in the northwest area. This species is seldom economic on sorghum and progress is being made in avoiding unnecessary treatments. Infestations in corn were significant in the south-central district of KANSAS during 1976. Along with kernel feeding, ear shank damage sometimes resulted in further loss, due to ear drop. Larvae first appeared in economic levels in MISSISSIPPI during the last week in June 1976 in Jefferson Davis and other southern counties. Corn and sorghum planted in June and July were severely infested. Infestations of 200 percent were common in many parts of the State. Populations were much heavier than in 1975.

Infestations by fall armyworm and/or YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) were reported in TENNESSEE beginning August 4, 1976. Damage was reported in 23 counties in 210 acres (180 acres were treated). The population was normal and controlled with recommended insecticides in Dade County, FLORIDA, in 1976. In the Everglades area, Palm Beach County, this species and BEET ARMYWORM (S. exigua), damaged whorls of sweet corn throughout the growing season with only a slowup during the mild winter; particularly heavy infestations during the fall almost completely destroyed unprotected corn. During September in Marion, Levy, and Alachua Counties, fall armyworm was a problem on several hundred acres of sorghum, requiring treatment. Some growers had difficulty obtaining control. In the Hastings area, St. Johns County, fall armyworm was light on 2,500 acres of corn and sorghum early in the season but became heavy on late-planted field corn (planted in May), the problem being worst the last 7-14 days of June (the heaviest damage occurred in the whorls but also some on the ears by the end of June). The first report of larvae in the northern area was on 12 to 14-inch corn at Hastings April 9. Infestations were again moderate to heavy on sorghum in SOUTH CAROLINA in 1976. Populations were noted statewide by mid-August. Most growers were late in applying insecticides and economic damage resulted in many areas. Moderate to heavy infestations were again noted on sorghum in South Carolina in 1976. The pest was found statewide by mid-August. Most growers applied insecticides too late to prevent economic damage. Some problems were noted in commercial field corn in eastern RHODE ISLAND in 1976 but the problems were much lighter than in 1975.

BEET ARMYWORM (*Spodoptera exigua*) infestations in FLORIDA became an unusual problem on several hundred acres of young sweet corn and seed corn grown in the southern Miami area of Dade County, during September and October 1976. Growers did not get good control with the chemicals used. Infestations caused a problem during May on field corn at Hastings in fields where pigweed was prevalent. Beet armyworm and FALL ARMYWORM (*Spodoptera frugiperda*) damaged whorls of sweet corn throughout the growing season in the Everglades area with the mild winter slowing, but not stopping, activity. Particularly heavy infestations during the fall months almost completely destroyed unprotected corn.

BLACK CUTWORM (*Agrotis ipsilon*) caused scattered damage to 1976 NEBRASKA corn plantings. Damage was reported from Richardson and Antelope Counties in early June. Infestations in IOWA were first detected in field corn during the week ending May 21, 1976, in Sioux and Buena Vista Counties. Leaf feeding by larvae, 0.50-0.75 inches long, increased during the week ending May 28. Damage was reported from 11 counties. Some fields were replanted where stands had been reduced 50-80 percent. Damage increased during the first week of June, affecting field corn in Clinton, Dubuque, Greene, Hamilton, Jasper, Story, Union, and Worth Counties. Stand reductions ranged 3-50 percent. Larvae increased up to 1.5 inches long and damage was reported from 9 counties statewide. Much damage was in corn in chisel-plowed soybean ground. Less damage observed during the week ending June 18 indicated activity had apparently peaked. Late instar larvae damaged 2-foot corn in Scott and Washington Counties during the week ending June 25. Scattered reports of damage during the first week in July were received from Clinton County. Infestations caused more widespread damage to field corn in 1976 than in 1975. Significant damage is expected in reduced-tillage fields in 1977.

Black cutworm feeding was first observed in some corn fields in southern ILLINOIS during the last week of April 1976. Damage was mostly leaf feeding with some cut plants. Damage was reported in some fields in the southern and western areas during the second week of May and in the central area through the first week of June. By the second week of June, damage was reported from occasional fields in most areas with infestations ranging from light to moderate (5-15 percent cut plants). Heavy damage was reported from a very few fields. By the third week in June, activity had decreased and some stalk boring was reported. Dollar loss due to emergency treatment and yield loss was estimated at about \$3 million. Benefits from treatment of about 100,000 acres amounted to over \$1 million, over and above losses from yield reduction and control costs. About 54,000 acres of corn had to be replanted. The first adult of the season in INDIANA was collected April 16, 1976, in a Tippecanoe County blacklight trap with peak flights July 2-8. Larvae were present in more corn fields in 1976 than for several years, but rarely reached economic numbers. No more than 400 acres with economic or near economic populations were reported. Only 24 percent of the larvae collected in 1976 were parasitized compared with 60 percent in 1975.

Damage in NORTH CAROLINA was severe in scattered corn fields during late April and May 1976 from the mountains to the coast. The heaviest damage occurred in Washington, Pender, Cumberland, and Robeson Counties where 5-15 percent stand loss occurred in 8 fields totaling 650 acres. Infestations up to 5 percent occurred in more than about 10 percent of the 100 fields sampled during May in the Piedmont. A dry April and cool May increased plant susceptibility to larvae. Severe infestations on corn were reported throughout NEW YORK in late June 1976. The affected counties included Broome, Onondaga, Orleans, Clifton, and St. Lawrence. Substantial stand losses, often 50 percent, were reported and many fields were replanted. Adults peaked at 44 in blacklight trap

collections in Kennebec County, MAINE, the week of May 28, 1976. Adults continued to average about 1-5 per trap per night until September 15, explaining the continuous infestations of all larval instars in all of southern and central Maine. By June 15, larvae of all sizes severely damaged 50 acres of corn in York County, 30 acres in Somerset County, and other large acreages in central and southern Maine. An estimated 5,000 acres were treated.

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) damaged ears and tassels in several corn fields 8 miles southwest of Boise City, Cimarron County, Oklahoma, August 4, 1976. Collected by D. Arnold and B. Mussey. Determined by D.M. Weisman. This is a new State record. The first adult of the season in NEBRASKA was taken at a blacklight trap in Hamilton County June 28, 1976. The first egg mass was observed on corn in Antelope County July 6. A total of 1,700 moths was taken in a light trap near Imperial, Chase County, the night of July 19. Infested plants ranged 15-90 (averaged 30) percent in 9 corn fields in Antelope and Wheeler Counties July 21. Infestations were economic in the southwest, central, east, north, and northeast districts. Infested plants averaged 10 percent in 48 fields in Brown, Rock, Keya Paha, and Holt Counties August 12-16. Fully grown larvae left corn ears to enter the soil in Brown and Rock Counties August 25. More damage was reported in 1976 than in recent years.

STALK BORER (*Papaipema nebris*) damage to the borders of corn fields was moderate in the central and midwestern areas of KENTUCKY in early July 1976. Infestations were apparently more common than usual in INDIANA in 1976, both in corn and small grains, an unusual occurrence. Damage to no-till corn in central and south-central PENNSYLVANIA in 1976 was so heavy in some areas that replanting was necessary.

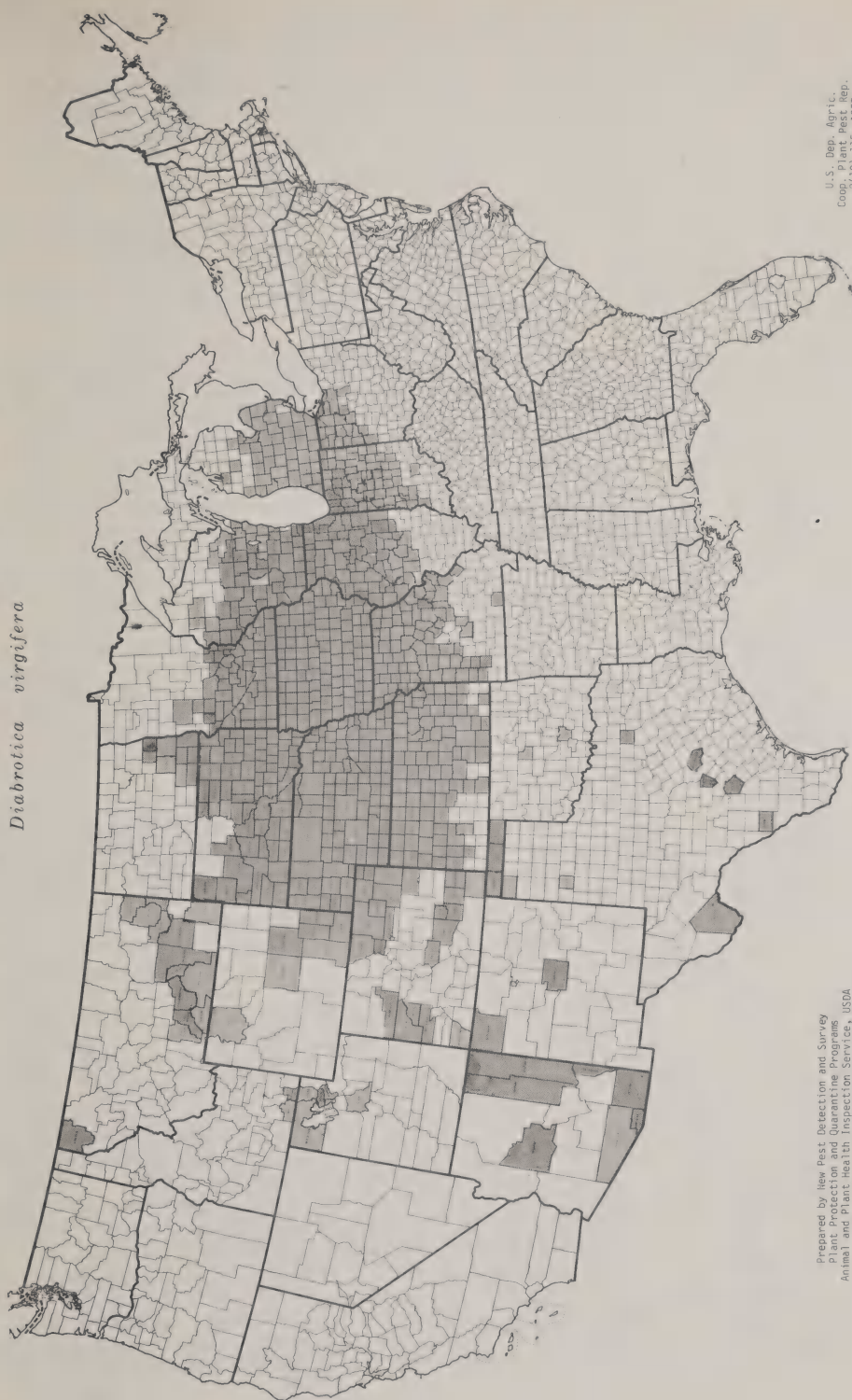
SORGHUM WEBWORM (*Celama sorghiella*) infestations in ARKANSAS during 1976 were typically light and scattered but more common in late sorghum. Treatments were required in only occasional fields except in Craighead County where late sorghum required treatment in October. Infestations in SOUTH CAROLINA in 1976 were about normal. Only a slight reduction of production was noted.

Preventive control and crop rotation in UTAH in 1976, reduced injury by WESTERN CORN ROOTWORM (*Diabrotica virgifera*) to moderate levels with an occasional conspicuously damaged corn field. Some control of adults was necessary in Box Elder, Weber, and Salt Lake Counties. *D. virgifera* adults in IDAHO seriously damaged pollination of corn; damage to roots was not as serious as expected. Infestations are still apparently restricted to Oneida and Franklin Counties. Lodging by *Diabrotica* spp. larvae was not as common in Kansas during 1976 as in 1975. Serious root damage was reported in Graham and Sherman Counties. Treatment for adults was reported throughout the western area. Some particularly heavy adult infestations were noted in Brown, Doniphan, Linn, Chase, and Thomas Counties by late July. *D. virgifera* and NORTHERN CORN ROOTWORM (*D. longicornis*) larvae were feeding on corn roots in Merrick, York, Hall, and Buffalo Counties in NEBRASKA June 13, 1976. Actual rootworm damage peaked the last week of June and the first week of July. Pupation was noted in Hall, Merrick, York, and Fillmore Counties June 28-30. The first western corn rootworm adults were noted in Lancaster County June 26 and in the northeast district July 3. Severe root pruning was noted in scattered fields in the northeast district. Lodging was most common in the northeast and southeast districts as indicated by fall damage surveys. Apparent failures of soil insecticides were few. Adults, up to 10 per plant in some fields, interfered very little with pollination.

Diabrotica spp. were a severe problem on field corn in IOWA in 1976. First and second instar larvae were first detected in field corn in O'Brien County the week ending June 18. By June 25, second and third instars ranged 5-10 per plant

Distribution of Western Corn Rootworm

Diabrotica virgifera



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
March 4, 1977

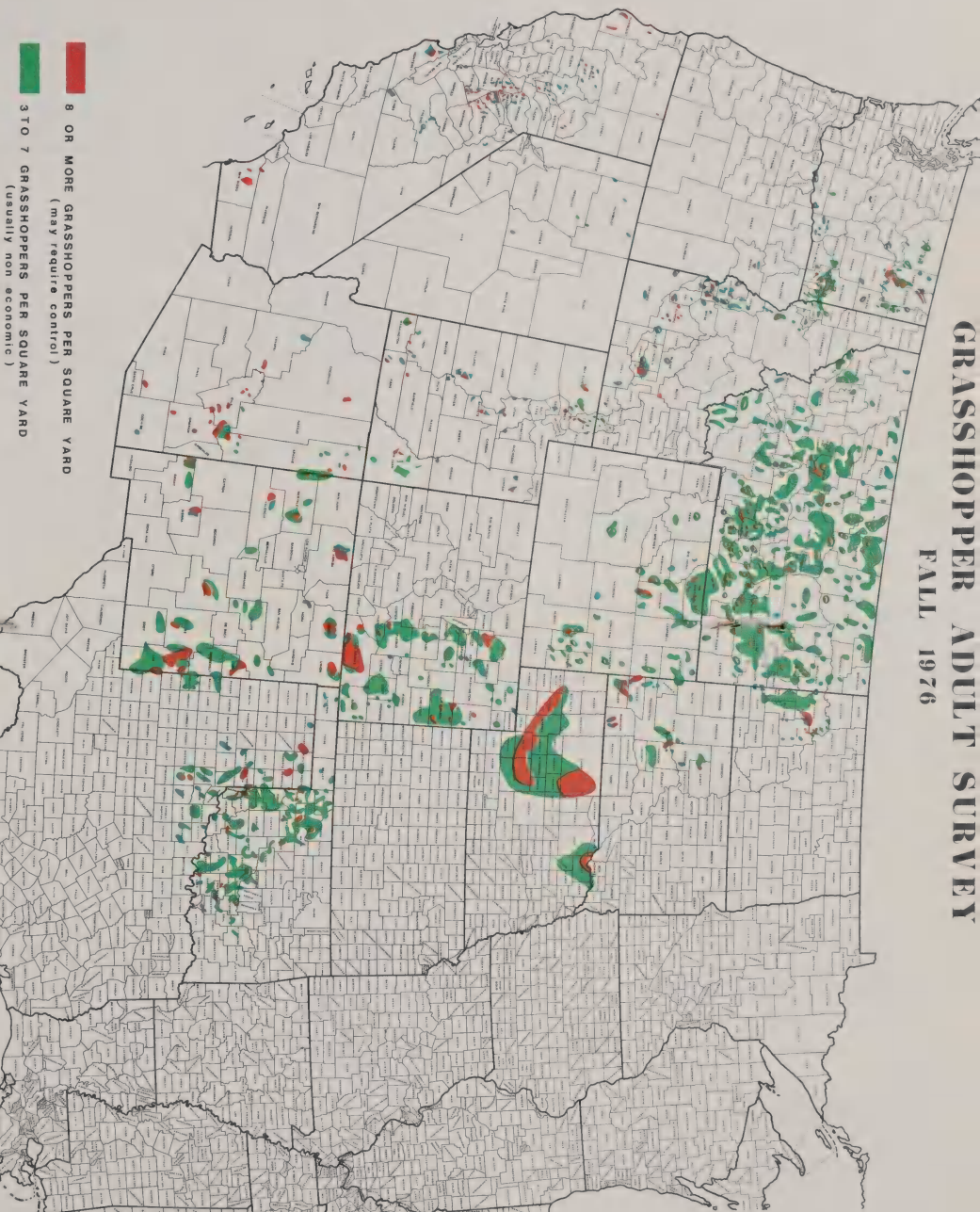
U.S. Dep. Agric.
Com. Plant Industry
2(10):115, 1977

on corn in Ida County, Iowa. During the week ending July 2, heavy rootworm populations damaged treated corn fields in Ida County. At that time, the first pupa was collected and 7 days later the first adult observed in this county. Rootworm development in 1976 averaged about 14 days ahead of 1975 development. Late instar larvae ranged 3-4 per plant in treated corn in Clinton and Clayton Counties during the third week of July. Adults were heavy, 10-25 per plant, and were cutting silks on field corn in Carroll and Butler Counties the week ending July 23. No gravid females were evident. Corn lodging was reported during the last week of July. Controls were applied where beetles ranged 3-25 per plant in Adair, Adams, Benton, and Floyd Counties during the first week in August. During the same time, larvae, pupae, and adults were still present in Crawford County corn fields and egg laying was underway in Carroll, Crawford, and Tama Counties. Although rootworm populations were heavier in 1976 than in 1975, very dry conditions prevented many fields from lodging.

Diabrotica spp. damage was difficult to separate from drought effects on field corn in SOUTH DAKOTA in 1976. First instar larvae were found in Lincoln County during the third week in June. The general rootworm infestation pattern began at moderate to heavy levels. Heavy larval mortality was associated with very dry soil conditions. Plants showed moisture stress during much of the growing season. Larval survival appeared related to the larval tunneling in larger roots. Larvae ranged 10-90 per plant, more erratic than in past years, at the southeast experiment station during late June; subsequent counts showed sharp decreases. The first *D. virgifera* males were observed through the use of sex pheromone traps June 28. Corn rootworm damage and insecticide "failures" were considerably less in 1976 compared with previous years. The large acreage of drought-affected corn cut for silage, and rapid maturity of dryland corn contributed to beetle migration to irrigated corn. Few small grain stubble fields had sufficient volunteer grain and weed growth to attract corn rootworm beetles. In 1977 the incidence of first-year corn damage is expected to be minimal and erratic populations are expected in continuous corn. Insecticidal performance in test plots declined about 10 percent as a result of the very dry soil. Damage in the untreated areas was not as severe as anticipated from egg counts and the rate of hatch studies.

New county records were reported in NORTH DAKOTA in 4 counties for SOUTHERN CORN ROOTWORM (*D. undecimpunctata howardi*), in one county for *D. longicornis*, and in 10 counties for *D. virgifera*. Survey of *D. longicornis* and *D. virgifera* adults in 41 corn-growing counties of MINNESOTA during 1976 revealed increases in the west-central, central, east-central, southwest, and south-central districts and a decrease in the southeast district compared with levels in 1975. Beetles in the west-central district averaged 46,098 per acre compared with 28,511 per acre in 1975. Populations increased in 6 counties and decreased in 4. The heaviest average was noted in Yellow Medicine County at 110,814 per acre. Populations in the central district averaged 22,335 per acre in the 8 counties surveyed, increasing in 4 counties and decreasing in 2. The heaviest average was 71,925 per acre in Wright County. The east-central district averaged 21,547 per acre, a more than twofold increase over the 1975 count of 10,874 per acre. The southwest district averaged 69,367 per acre. This district had the heaviest population in 1976 with all counties registering increases. The south-central district averaged 54,317 per acre. Increases were noted in Blue Earth and Waseca Counties with 83,519 and 39,485 per acre, respectively, compared with 45,085 and 1,960 per acre in 1975. The southeast district averaged 46,521 per acre, a decrease from 53,421 per acre in 1975. Populations decreased in Dakota, Fillmore, Goodhue, and Olmsted Counties. In WISCONSIN a *Diabrotica* spp. egg survey (10.3 eggs per pint of corn field soil) in the fall of 1976 indicated a high potential for damage in 1977. The first large larvae were observed June 14 in Columbia County; up to 20 larvae per root mass were noted in some treated corn fields. Insecticide "failures" were reported in many Wisconsin localities.

GRASSHOPPER ADULT SURVEY FALL 1976



8 OR MORE GRASSHOPPERS PER SQUARE YARD
(may require control)

3 TO 7 GRASSHOPPERS PER SQUARE YARD
(usually non economic)

necessity for control on crop or rangeland next season will depend upon type of habitat, species present, weather and condition of vegetation.

detailed information concerning the grasshopper problem in specific areas can be obtained from state pest control officials, county agents and plant protection personnel.

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
Plant Protection and Quarantine Programs

TO COOPERATORS:

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1976. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1977. Nymphaeal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1977.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance from Plant Protection & Quarantine personnel. The infested rangeland areas total 5,194,760 acres in 15 Western and Midwestern States. Areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS
ACREAGE BY REGIONS, FALL 1976

(Areas shown in red)

REGION AND STATE	LANDOWNERSHIP--ACRES		REGION AND STATE	TOTAL ACRES	LANDOWNERSHIP--ACRES		TOTAL ACRES
	Private and State	Public Domain			Private and State	Public Domain	
WESTERN							
Arizona	36,000	282,000	Utah	318,000	17,840	28,200	46,040
California	151,350	11,100	Wyoming	162,450	263,200	52,480	315,680
Colorado	965,680	54,000		1,019,680			
Idaho	33,350	102,200	SOUTH- CENTRAL	135,550			
Montana	870,200	191,380	Nebraska	1,061,580	900,000	100,000	1,000,000
N. Dakota	82,650	118,720	N. Mexico	201,370	237,000	69,000	306,000
Oregon	7,860	3,200	Oklahoma	11,060	195,000	-0-	195,000
S. Dakota	45,600	70,200	Texas	115,800	253,000	-0-	253,000
Washington	39,950	13,600		53,550			

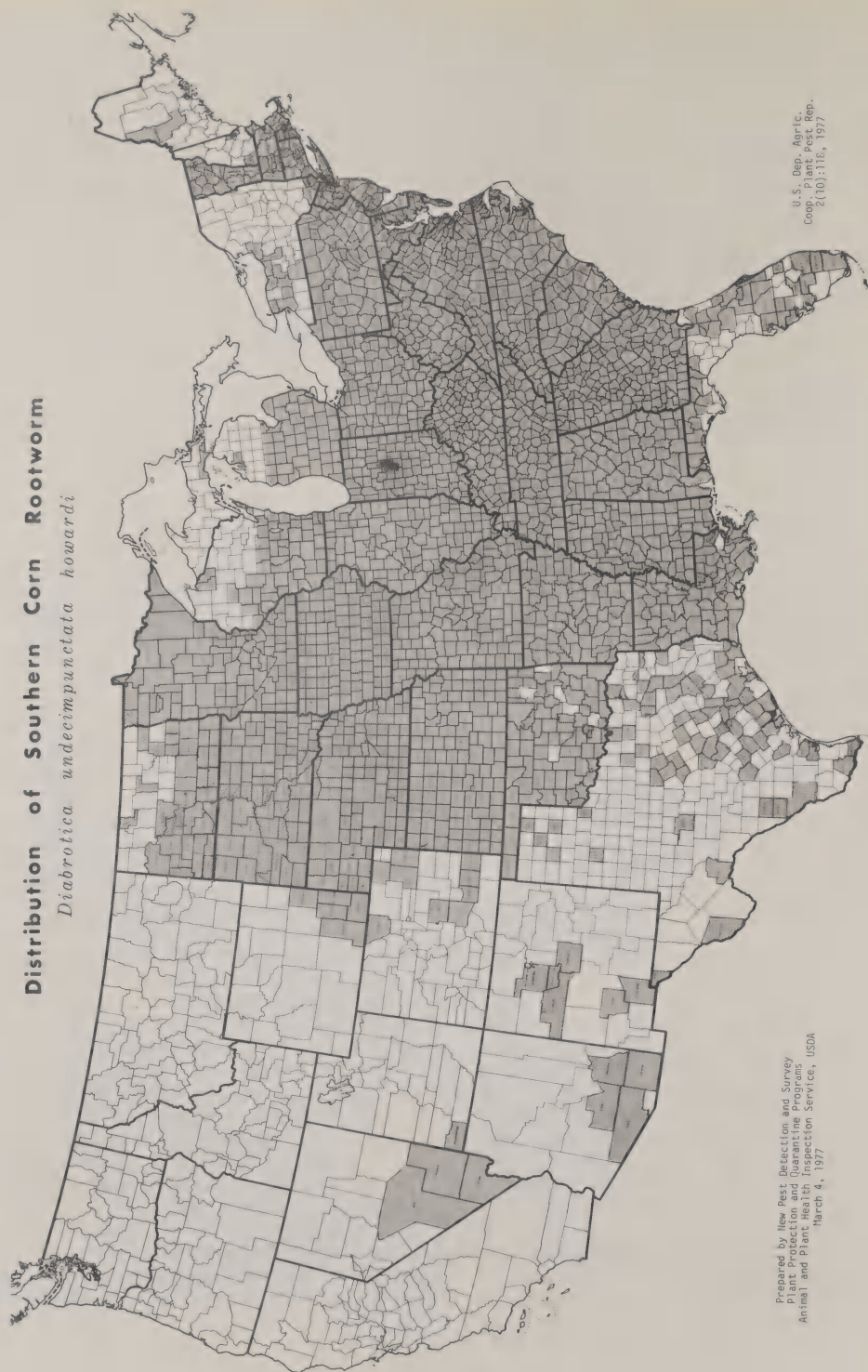
The survey was planned and performed by Plant Protection and Quarantine personnel in cooperation with various State Agencies concerned.

The first D. longicornis adults were noted in Columbia County July 1, and D. virgifera adults were observed in Dane County July 9. Heavy populations in many corn fields late in July and August caused many growers concern over silk feeding by the adults. Silk feeding reduced pollination in about 2 percent of the fields statewide; much treating was done to control adults in certain localities. Mating was noted as far north as Trempealeau County by July 23, and egg laying probably began in the southern counties about August 1. A survey early in August revealed a State average of 1.9 beetles per plant, a 46 percent increase over the previous summer. An egg survey late in September revealed a State average of 14.8 eggs per pint of soil, an increase of 43 percent over the previous fall. Based on the beetle and egg surveys, severe problems with corn rootworms are anticipated in 1977. A survey late in September showed 3.4 percent lodging statewide, a drastic decrease from 1975 due to corn plants developing deeper, denser root systems in 1976 as compared with 1975, and the drought-baked soil cementing damaged corn plants in an upright position.

SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) larvae were first reported from Pike County, MISSISSIPPI, April 16, 1976. Damage was extensive to seedling corn; three fields were replanted. Spotted infestations were recorded during late spring on young corn and sorghum in the southern area. Populations decreased by June 15. D. undecimpunctata howardi damaged some field corn in Franklin and Lincoln Counties, TENNESSEE, in late May and early June 1976.

D. virgifera and D. longicornis egg hatch in ILLINOIS was well underway by mid-June 1976. Half-grown larvae were found in the western and northwestern counties at this time. By July 1, newly hatched to fully grown larvae and pupae were found, and hatch was expected to continue for at least 7 more days. Larvae ranged 10-15 per plant in occasional fields. Serious root pruning and some lodging was already observed in some fields. By July 9, adults were emerging in the central counties. D. virgifera ranged 7-8 per plant in some fields and 2-3 per plant in many fields within 14 days of silking. By July 16, beetles were observed emerging in large numbers in the northern and central counties, especially in fields of continuous corn. Peak adult emergence was anticipated for late July, but pollination was expected to be completed in most fields. The estimated dollar loss from corn rootworm adults and larvae was about \$40 million, including cost of control. Benefits from treatment of 1.1 million acres for beetles and 5.5 million acres for larvae, amounted to approximately \$37 million over and above dollar losses from control costs and feeding damage. The heaviest populations were noted in the northwest (3.5 per plant), northeast (2), and western (2.1) districts. The potential for damage to corn in 1977 is considered moderate to severe for the northern half of the State. The first D. longicornis adult of the season in INDIANA was seen July 5, 1976, in Parke County. During the summer, infestations were noted in about 9 percent of the corn fields (a decrease from 1975) surveyed in the northern and southern fourths of the State and in 27 percent of the fields in the central one-half of the State (about the same as in 1975). The first D. virgifera larva was seen June 11, 1976, in Porter County, Indiana, and the first adult was noted July 1 in La Porte County. Activity peaked in a corn field in Tippecanoe County on July 27. Although goosenecked stalks were no more common than in 1975, several other indicators pointed to heavier populations in 1976 than in 1975. Adults were seen in 77 percent of the fields during the July survey, as compared with 59 percent in 1975, in the northern one-fourth of the State. Adults in the rest of the northern one-half of the State were seen in 22 percent of the fields, as compared with 14 percent in 1976. Western corn rootworm also dominated northern corn rootworm in nearly all of Indiana north of Indianapolis and extended its range by 15 counties.

Distribution of Southern Corn Rootworm *Diabrotica undecimpunctata howardi*



Prepared by New Pest Detection and Survey
 Plant Protection and Quarantine Programs
 Animal and Plant Health Inspection Service, USDA
 March 4, 1977

U. S. Dep. Agric.
 Coop. Plant Pest Rep.
 2(10):118, 1977

The first D. longicornis larvae collected in OHIO was taken in soil samples from Wayne County June 10, 1976. Pupation was first noted July 1 and the first adult was collected July 12. Adults were present statewide by the end of July. Adult populations were similar to previous years, light to moderate for all areas except the northeast where heavy infestations were reported. Areawide population averages in continuous corn fields during August 1-21 ranged from 12.5 to 375 beetles per 50 plants. Dispersal of beetles out of maturing corn fields had begun by August 17 and was well underway statewide by August 24. Northern corn rootworm was laying eggs in the northeast area by August 26. D. virgifera populations in continuous corn fields were light to moderate, but showed an increase over 1975 in all infested areas. Surveys during August 1-21 in the northwestern counties, where western corn rootworm is known to have been present for 2 years, revealed average population densities ranging from 9 to 73 (mean 33) beetles per 50 plants. The heaviest infestation was in a Defiance County field with 2.5 beetles per plant on August 3. In the northwestern, north-central, and west-central counties where western corn rootworm was first detected in 1975, populations averaged 2-75 (mean 18) beetles per plant. Nine new county records were established for western corn rootworm. Surveys indicate a dispersal of about 40 miles to the west and 20 miles south of the area considered infested in 1975.

The first D. longicornis adults in PENNSYLVANIA were noticed during the third week in July 1976 and reached full activity in the southern and central counties by mid-August. Because of heavy rainfall, the corn crop seemed able to produce sufficient secondary root systems to overcome infestations. The heaviest activity in the northern counties was reached in late August. Egg laying began in late August and peaked in mid-September. Because of heavy populations in many areas (80 per 20 stalks in Lancaster County and 75 per 20 stalks in Mifflin County), infestations may be very important in continuous corn in 1977.

CORN FLEA BEETLE (Chaetocnema pulicaria) infestations were heavier than usual on seedling corn in KANSAS. Some heavy infestations were noted in Marion (up to 12 per plant) and Douglas (up to 4 per plant) Counties during mid-April 1976. Some adults of this species, the vector of STEWART'S WILT (Erwinia stewartii), appeared in the eastern counties of MASSACHUSETTS in early June. Populations were light in 1976 due to a harsh winter.

A WEEVIL (Sphenophorus zeae) destroyed 20 acres of corn in Decatur County, INDIANA, in 1976, an unusual occurrence. MAIZE BILLBUG (Sphenophorus maidis) and S. callosus continued to damage some corn across SOUTH CAROLINA in 1976. S. callosus caused light to heavy damage in isolated fields throughout the lower part of the State. Damage by S. callosus and S. maidis adults continued to be of major concern to corn growers in the southern Coastal Plain and Tidewater area of NORTH CAROLINA during April and May 1976. Severe stand loss occurred in some areas due to poor early season corn growing conditions. Estimates of 50 percent plant damage and 25 percent stand loss in Hoke, Robeson, Columbus, Bladen, and some Tidewater counties were common in untreated, nonrotated fields. Damage in the upper coastal counties has steadily increased for the past 5 years. Generally, damage in Wilson, Harnett, Edgecombe, Johnson, and Wayne Counties was less severe than in the southern counties, but replanting in about 10 fields was reported. Usually, damage is severe in 5-15 border rows.

Two WIREWORMS (Melanotus communis and Conoderus falli) caused 10-35 percent stand loss in inadequately treated sweet corn in the Everglades of FLORIDA in 1976. About 95 percent of the commercial acreage was treated adequately

either by chemicals or by flooding. In sugarcane, *M. communis* began to rival SUGARCANE BORER (*Diatraea saccharalis*) as a major pest in Florida; the population was about the same in 1976 as in 1975.

M. communis and *Conoderus* sp. caused heavy stand loss in NORTH CAROLINA corn fields scattered over the Piedmont and Coastal Plain in 1976. Damage was most severe in late-planted or late-germinating (due to April drought) fields. Up to 15 percent stand reduction was reported from Montgomery, Washington, Chatham, and Cleveland Counties.

CHINCH BUG (*Blissus leucopterus leucopterus*) infestations were unusually heavy and damaging after migrating from maturing wheat to sorghum in some counties in eastern KANSAS during 1976. The heaviest infestations were noted in southern Washington County where several fields were destroyed; some were replanted and destroyed again by chinch bugs. Chinch bugs were reported as a pest of sorghum in Washington and Nemaha Counties throughout the season. Occasional damaging infestations also occurred in Marshall, Republic, Jefferson, Riley, Clay, Cloud, Lincoln, Geary, Morris, Dickinson, Marion, Harvey, McPherson, Reno, Sedgwick, Shawnee, Osage, and Douglas Counties. Infestations in NEBRASKA were unusually heavy and troublesome to growers in the southeast district in 1976. The most heavily infested fields were in Johnson, Gage, Jefferson, Thayer, Saline, Lancaster, and Otoe Counties. Many fields of winter wheat which overwintered in poor condition were destroyed very late and replanted to grain sorghum. Resultant infestations, heavy in many cases, completely spread throughout the field. Treatments proved nearly useless. Some growers replanted once or twice until a stand was grown. Infestations in ILLINOIS caused serious damage in late July 1976 in some southern fields of no-till corn planted in wheat stubble. This situation may occur again in 1977.

YELLOW SUGARCANE APHID (*Sipha flava*) infestations along with GREENBUG (*Schizaphis graminum*) and CORN LEAF APHID (*Rhopalosiphum maidis*) heavily damaged young sorghum from late May to late June 1976 in OKLAHOMA. Infestations were first reported in Wagoner and Tulsa Counties and spread to most counties in the east-central, northeast, north-central, and northwest areas. Yellow sugarcane aphid continued a noneconomic pest of sorghum in ARKANSAS in 1976, but infestations were somewhat heavier than in past years. Infestations were taken in 3 new counties. Yellow sugarcane aphid was heavier and more widespread on KANSAS sorghum (generally seedlings) in 1976 than ever before recorded. Infestations were most commonly found in the east-central and southeast districts where some damaging infestations were reported. In rare cases it was found as far west as Sedgwick, Kiowa, and Dickinson Counties.

A GRASS THRIPS (*Anaphothrips obscurus*) seriously damaged 3 acres of corn in Gibson County, INDIANA, in 1976, an unusual occurrence.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) infestations became very heavy along borders of some corn fields by August 4, 1976, in Carbon County, MONTANA. Several hundred acres were treated. In NORTH CAROLINA injury reports during July 5-9, 1976, indicated the problem in field corn is no longer restricted to the northern coastal counties. Reports of severely damaged 0.5-acre spots were received from Sampson, Hoke, and Robeson Counties in the southern Coastal Plain. Damage continued most severe in Edgecombe, Halifax, Chowan, Northampton, and Bertie Counties. Spots up to one acre in size were observed during early July with brown leaves to midstalk. Infestations spread from border rows inward and most often occurred on light soils. Heavy populations damaged field corn in southeast VIRGINIA July 9, 1976, necessitating controls in many fields. Heavy populations continued to cause problems on

corn and other crops in southeastern Virginia through July. I. urticae damage was widespread. In many fields damage was confined to the outer 4 or 5 rows and control was not justified except on the margins.

BANKS GRASS MITE (Oligonychus pratensis) populations on silage corn in Churchill County, NEVADA, were light in 1976 as in 1975 with only 56 acres treated in July. Colonies were noted at 3-5 per corn leaf in Roosevelt County, NEW MEXICO, by early July 1976. In early August, colonies were 15-20 per sorghum leaf with heavy damage in southern Dona Ana County. Controls at that time were ineffective. Activity was noted on corn and sorghum in OKLAHOMA from early June to mid-September 1976. Some corn fields in the Panhandle counties needed treatment between mid-July and mid-August.

O. pratensis and TWOSPOTTED SPIDER MITE (Tetranychus urticae) were very widespread and damaging to NEBRASKA corn in 1976, particularly in the northeast, east, central, and southwest districts. Of 70 corn fields surveyed in Dundy County on July 8, only 64 fields had colonies of 3-35 mites on the undersides of lower leaves. Infestations were spreading throughout the fields and was not confined to margins. Mites increased on corn in Merrick, Hall, and Buffalo Counties with colonies as high as the fifth leaf on July 19. Of 80 fields on July 23-27 in Hall and Buffalo Counties, 13 had several lower leaves killed with damage extending up to ear level. Mites became damaging in Antelope, Pierce, and Cedar Counties where 10 of 68 fields surveyed had economic infestations August 25. Populations were threatening in many fields in the east district as late as September 1 when corn began to dent.

SMALL GRAINS

Highlights

TAKE-ALL was one of the most significant diseases of winter wheat in Wisconsin. Heavy FALL ARMYWORM infestations in wheat were noted in Oklahoma and Kansas; infestations on rice in Arkansas and Mississippi were treated.

DISEASES

The prevalence of OAT CROWN RUST (Puccinia coronata var. avenae) infection in WISCONSIN was greatly reduced in 1976 as compared with the previous 3 years. A survey was taken in 70 fields of the 20 main oat-producing counties. State-wide infections were found on one percent of the surveyed plants at a one percent severity level. Unfavorable weather conditions prevented the early development of crown rust and the dry, hot summer further suppressed the disease. No infection was seen in 12 of the 20 counties surveyed and drought damaged leaves made assessment of foliar diseases difficult.

OAT LOOSE SMUT (Ustilago avenae) caused the heaviest loss, averaged 20 percent, in Foraker oats in Waseca, Blue Earth, Watonwan, and Brown Counties, MINNESOTA, in 1976.

LOOSE SMUT (Ustilago nuda) infections in Wisconsin in 1976 were found in 67 of 70 winter wheat fields in Rock, Kenosha, Racine, Dodge, Washington, and Sheboygan Counties. The average prevalence was 4 percent with a field severity of 15 percent.

TAKE-ALL (Gaumannomyces graminis) infection was one of the most significant observed in WISCONSIN during a winter wheat survey in late June 1976, and probably the most economically important. Of 70 fields surveyed in Rock, Kenosha, Racine, Dodge, Washington, and Sheboygan Counties, 49 were infected.

Take-all was 40+ percent prevalent in several fields previously planted to wheat or severely infested with quackgrass. Prevalence in Kenosha and Racine Counties was greater than in 1976 and less in Washington and Sheboygan Counties. Fields were surveyed as close to harvest as possible.

INSECTS

FALL ARMYWORM (Spodoptera frugiperda) damaged small grains in October 1976 in the San Angelo area of TEXAS. Infestations in wheat were present by mid-September 1976 in OKLAHOMA. From late September through mid-October, heavy populations damaged young wheat in many fields in the northwest, north-central, west-central, central, southwest, and south-central areas. Some fields (less than 10 percent) were treated in all of these areas. Pupation, spraying, and cold weather brought an end to most infestations by the end of October. Infestations destroyed some wheat fields, particularly in south-central KANSAS, during October 1976. Some fields were treated. Significant infestations were most frequently encountered in Reno, Sedgwick, Kingman, Harper, Comanche, Kiowa, Clark, and Ford Counties.

Fall armyworm on rice in ARKANSAS required treating in a few fields in 1976. This species is economic on rice only when infestations are heavy overall because rice is not a primary host. Larvae appeared on rice in MISSISSIPPI during the week of August 12, 1976. Larvae, 6-8 per square foot, were reported from the Delta counties; treatments were applied. Fall armyworm in TENNESSEE damaged 539 acres of small grains in 1976; 365 acres were treated.

HESSIAN FLY (Mayetiola destructor) in INDIANA infested 13 percent of 260 fields surveyed in 48 counties. Of the infested fields, only 3 had infestations greater than 10 percent. The mean number of puparia per 100 stems for all surveyed wheat was 0.9, the mean for cultivars resistant to Race B Hessian fly was 0.2, and the mean for cultivars not resistant was 4.0.

WHEAT STEM MAGGOT (Meromyza americana) larval infestations in many wheat fields were heavier than usual in northeastern MONTANA by mid-July 1976. By late July, many growers from the eastern area were concerned. Infestations damaged up to 7 (averaged 4) percent of wheat in western NORTH DAKOTA in 1976 and 2 percent in the eastern area.

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) slowly but consistently increased in ARKANSAS in 1976. Infestations were somewhat later than usual due to slow growth of rice resulting from cool weather and later flooding of fields.

ENGLISH GRAIN APHID (Macrosiphum avenae) infestations were moderate on wheat, barley, and oats in northern CALIFORNIA in 1976; treatments were applied. English grain aphid was heavy (up to 25 per head on maturing cereals) in Lincoln, Spokane, and Kittitas Counties, WASHINGTON, in 1976. Aphids, especially Rhopalosiphum padi, increased in the fall throughout the grain-growing areas of eastern and central Washington. English grain aphid infestations on small grains increased for the third consecutive year in NEVADA with 150+ per sweep occurring in Churchill, Humboldt, Lander, and Pershing Counties in June and July 1976. Predators effectively reduced infestations in Churchill County, but chemical controls were required on 12,836 acres in the last 3 counties, mostly in July. Infestations were light to heavy in heads of wheat particularly in eastern counties of the east-central and southeast districts of KANSAS during late May and early June 1976. English grain aphid was confused with GREENBUG (Schizaphis graminum); some treating was related to this confusion.

English grain aphid and R. padi infested wheat and oats in Stutsman County, NORTH DAKOTA, at the rate of 20 adults and nymphs per head by July 9, 1976. Infested heads ranged 6-100 (averaged 66) percent in 100 percent of the fields in Morton, Oliver, Mercer, Dunn, McKenzie, and Stark Counties by July 16. Aphids per infested head ranged 1-70 (averaged 11). Populations in the eastern and north-central parts of the State ranged from noneconomic to light on wheat, durum, barley, and oats. Controls were applied in the north-central and the western half of the State at this time. Infested heads ranged 0-100 (averaged 38) percent of late-planted wheat in Adams, Bowman, Grant, Hettinger, and Slope Counties by July 23; the number of aphids per infested head ranged 1-70 (averaged 9). Populations of M. avenae and R. padi were heavy in some southern ILLINOIS wheat fields in May 1976. Up to 100 per plant was reported from occasional fields. M. avenae was the most common aphid on small grains in MISSISSIPPI in 1976. April 1 infestations were 30+ per 25 sweeps of winter wheat and increased to 400+ per 25 sweeps in the northern area.

An APHID (Rhopalosiphum padi) ranged up to 60 per row foot of small grains in the Rolling Plains of TEXAS January 7, 1976, and continued below that level until February 13 when populations ranged up to 250 in Hardeman and Wilbarger Counties and 500 in Castro County. A gradual decrease occurred in the High Plains and Rolling Plains with no reports after March 5. R. padi infested wheat in OKLAHOMA through early May 1976, averaging 50 or less per row foot in most areas. Fall activity began in the west-central area in late October. R. padi ranged 300-400 per plant in some small grain fields in SOUTH DAKOTA in 1976. No economic thresholds have been established. This species and ENGLISH GRAIN APHID (Macrosiphum avenae), normally heavy in wheat only in the southwest corner, were heavy on small grains in 1976 through the central and even into the northern districts of INDIANA. Counts became heavy too close to harvest to be of consequence.

BROWN WHEAT MITE (Petrobia latens) infestations on winter wheat in Pershing County, NEVADA, in 1976 were above the 1975 level but lighter than in 1974. Populations began increasing in late March when 20-30 mites per plant were present. Infestations continued to increase, caused heavy damage in early April, and required treatment on 1,074 acres. Infestations were first reported on small grains from the Rolling Plains of TEXAS in early February 1976. Populations of 200 per row foot were common in the High Plains, Panhandle, and Rolling Plains on March 5. Populations peaked 14 days later at about 1,000 per row foot and gradually decreased until May 28. Infestations were present in scattered areas in the western half of OKLAHOMA from early February to mid-April 1976. Heavy infestations developed in some spots in the southwest counties in late March and in the west-central counties in early April. Infestations were heavier than usual on wheat in KANSAS in late winter and early spring in the western area in 1976. This pest was of some concern to growers, especially in the southwest district.

WINTER GRAIN MITE (Penthaleus major) populations were light at the beginning of 1976 in the Rolling Plains of TEXAS. Infestations gradually increased to 50-700 per row foot March 11 in many Rolling Plains counties. A gradual decrease occurred with the last reports on April 30.

TURF, PASTURES, RANGELAND

Highlights

FALL ARMYWORM damage was extensive in south-central and other areas of Texas, in the eastern three-fourths of Oklahoma, and throughout Mississippi. RANGE

CATERPILLAR larvae were found for the first time in Oklahoma. Losses due to a SOD WEBWORM almost totaled \$2 million in Maryland. Severe damage by a SCARAB continued for the third year in Ohio. GRASS BUGS infested thousands of acres in Utah. Infestations ranged up to 300 per square yard in Wyoming.

DISEASES

MELTING OUT (*Helminthosporium vagans*) became particularly common on turf during late season wet weather in the southern portions of RHODE ISLAND in 1976.

INSECTS

FALL ARMYWORM (*Spodoptera frugiperda*), 10+ per square foot, suddenly appeared in coastal pastures throughout south-central TEXAS in late September 1976. Damage continued on lawns, pastures, and gardens throughout this area until frost. Infestations extensively damaged bermudagrass and St. Augustinegrass lawns, especially in the Blacklands, south-central, and gulf coast areas in August and September 1976. Moderate to heavy infestations in OKLAHOMA were found in pastures and lawns on the southern border by mid-July 1976. Widespread heavy infestations were present over the eastern three-fourths of the State during August and September. At least 2 generations of larvae were involved. Bermudagrass was most commonly infested, but damage was also reported on millet, fescue, and several weedy grasses in lawns. Infestations in grasses were much earlier than usual this year, seldom reported before early September in past years.

Fall armyworm was the main pest of pastures and meadows in ARKANSAS in 1976. The first seasonal occurrence was about July 1 in the extreme southern area on Coastal bermudagrass. Later in the season, infestations occurred in pastures, meadows, alfalfa, and lawns as far north as the middle of the State with scattered infestations in the north area. Infestations would have been much heavier statewide had normal rainfall occurred. Infestations in MISSISSIPPI caused extensive damage to all types of pastures and lawns statewide in 1976. The first specimen appeared during the last week of June in Jefferson Davis County on Coastal bermudagrass pasture; a 40 percent infestation was reported. Populations moved from the southern to the northern area and remained heavy until a decrease was noted during the last of September. An infestation of 27-117 per square foot was observed in Yalobusha County, July 29. This insect was much heavier during 1976 than in 1975. Fall armyworm in TENNESSEE damaged 273 (209 were treated) acres of pastures and turf and 332 (287 were treated) acres of hay. Infestations were moderate to heavy in golf courses and pastures planted to rye in SOUTH CAROLINA in the late summer of 1976. Rain delayed some insecticide applications and a good deal of damage resulted in some cases.

RANGE CATERPILLAR (*Hemileuca oliviae*) infestations were found in rangeland in western Cimarron County, OKLAHOMA, June 29, 1976. During July, infestations were found on 48 sections involving 30,720 acres. Most areas averaged less than one per square yard. This was the first report of larvae in Oklahoma. Adult activity was noted in mid-October.

WESTERN TENT CATERPILLAR (*Malacosoma californicum*), 8+ per stem, caused moderate to heavy damage to bitterbrush on about 2,800 acres of rangeland in areas of Elko, Humboldt, and Washoe Counties, NEVADA, in late May through early July 1976.

Larvae of an ARCTIID MOTH (Arachnis zuni) caused concern to NEW MEXICO range-land managers in Lincoln, Sierra, Santa Fe, Socorro, and Torrance Counties in 1976. Considerable defoliation was observed on salt bush (Atriplex), globe mallow (Sphaeralcea), winter fat (Eurotia), and several lesser forbes.

A SOD WEBWORM (Pediasia trisecta) heavily damaged 500 acres of bluegrass sod, causing losses in excess of \$800,000 in MARYLAND in 1976. Spotty damage to home lawns ranged moderate to heavy in several areas of Montgomery, Prince Georges, and Baltimore Counties. Losses to home lawns exceeded \$1 million.

Larvae and adults of a SCARAB (Ataenius spretulus) severely damaged annual bluegrass and bentgrass golf course fairways at several locations in OHIO for the past 3 years. In Hamilton and Clermont Counties (Cincinnati area), adult flight activity began in 1976 the last week of March. Adults ranged 6-10 per square foot in the thatch layer during April. Eggs were present May 5, and first and second instar larvae by May 18 and 26, respectively. The first summer generation reached a maximum of 240 per square foot in untreated areas the last week of June. Pupae were detected June 23. Newly emerged adults were present in soil samples July 1. The second summer generation began August 11 and reached a maximum average density of 106 per square foot August 24. The second summer generation was much reduced compared with the first generation.

Overwintered adults of BLUEGRASS BILLBUG (Sphenophorus parvulus) averaged 6 per square foot in lawns and commercial sod fields in Douglas County, NEBRASKA, May 6-10, 1976. Larval feeding damage became noticeable in the eastern one-third of the State by June 20. Larvae averaged 25 per square foot on a Douglas County sod farm on July 1, and 18 per square foot in a commercial sod field in Cass County August 6. This pest of lawns continued to become more of a problem in NEW HAMPSHIRE from year to year. Most of the lawns with noticeable infestations were found in the seacoast region, in 1976, primarily in towns bordering the ocean.

A WEEVIL (Hyperodes maculicollis) severely damaged several golf courses and one racetrack at Nashua, Hillsborough County and Derry, Rockingham County, NEW HAMPSHIRE in 1976. Feeding damage resulted in 20-30 percent destruction of turf on the golf courses. Damage was concentrated at these two sites; problems were not reported elsewhere in the State. Most damage occurred in late July.

A GRASS BUG (Labops hesperius) seriously infested many thousands of planted range grasses in the higher areas of UTAH again in 1976. The most extensive outbreak occurred on 15,000 acres in the Cedar Mountain area of Iron County. Treatments were applied to 4,000 acres in the Garfield and Kane areas; 11,000 acres in the general Wales Canyon area in Sanpete and Juab Counties; and 10,000 acres near Wales, Sanpete County, in the Uintah National Forest. Extensive areas were infested in Utah, Morgan, Piute, Sevier, and Weber Counties. In the lower areas, a combination of Labops spp., L. hesperius, Irbisia pacifica, I. brachycerus, I. shulli, and L. utahensis damaged to varying degrees range grasses in the northern area and in the lower valleys about the State. Much acreage was severely damaged through the black grass bug infestation, such as the Beaverdam, Snowville, and White Valley, Box Elder County areas, primarily by I. pacifica. L. hesperius was noted at 140 per square yard on crested wheatgrass in Platte County, WYOMING, in early May 1976. Infestations ranged 0-300 per square yard in Laramie, Platte, Goshen, and Sheridan Counties, and averaged 0.60 per square yard on crested wheatgrass in Laramie County. The following counts per square yard were found in these counties: Niobrara 50, Campbell 50-80, and Platte 30-40. L. hesperius ranged up to 30 per sweep in 14 wheatgrass pastures surveyed in the NEBRASKA Panhandle May 4, 1976. Some pastures suffered severe losses and adjacent wheat fields were damaged in some instances.

SOUTHERN CHINCH BUG (Blissus insularis) infestations decreased somewhat in importance but still caused several million dollars in losses and control costs on St. Augustinegrass in FLORIDA. Some of the population in southern Palm Beach County and northern Broward County in 1976 have been shown by field and lab tests to have complete resistance to organophosphates; carbamates are still effective. HAIRY CHINCH BUG (B. leucopterus hirtus) nymphs and adults were present and feeding in lawns in the eastern counties of MASSACHUSETTS July 21, 1976. Nymphs and adults were very heavy in eastern lawns in early August. Infestations continued to increase in NEW HAMPSHIRE in 1976. The first reports came in mid-May from Milford, Hillsborough County, where residential lawns were extensively damaged. Reports in mid-June came from Litchfield and Manchester, Hillsborough County, and Concord, Merrimack County, where extensive damage to lawns also occurred. In late July reports of lawn damage were received from Coos County, where damage usually is not noticeable. The second generation of chinch bugs caused moderate damage to lawns in Dover in mid-August, but no other reports of damage by the second generation were received.

MEADOW PLANT BUG (Leptopterna dolabrata) infestations in bluegrass seed fields in Spokane County, WASHINGTON, caused 78 percent "white top" during 1976 in areas not burned in 1975.

The heaviest infestations of CLOVER MITE (Bryobia praetiosa) in at least 5 years was noted during 1976 in RHODE ISLAND. Direct damage to turf was noted in several widely separated areas.

Identification of Adults of the Three European
Species of Arhopalus--rusticus rusticus, ferus,
and syriacus (Coleoptera: Cerambycidae)

T.J. Spilman 1/

ABSTRACT. An illustrated determination key to adults of the three species of Arhopalus occurring in Europe is given. Morphological diagnoses also provide specific comparisons. These economically important wood borers are often intercepted at United States ports of entry.

The three European species of the genus Arhopalus Audinet-Serville, rusticus rusticus (Linnaeus), ferus (Mulsant), and syriacus (Reitter), are economically important wood borers. These pests are often intercepted at United States ports of entry and are occasionally confused by taxonomists.

Although Lagar (1969) presented a key to the adults of these species for Spain, Portugal, and the Balearic Islands, his separation of rusticus rusticus from syriacus by the elytral apex and setae on the eyes cannot always be used confidently. Sutural angles of the elytra are, as stated by Lagar, variable in rusticus rusticus, and setae of the eyes are, contrary to the statement by Lagar, present. Consequently, I have examined these three species and have devised a new key. My morphological diagnoses and accompanying illustrations should also help to identify each species. Each character in a diagnosis is numbered for making comparisons.

Because several of the morphological characters given below are sexually dimorphic, it is important to be able to distinguish the sexes externally. Three structures can be used: Antennae are longer in males than in females, in males reaching at least the middle of the 2nd abdominal sternum, in females reaching no farther than the apex of the 1st abdominal sternum; tarsi, especially the protarsi, are slightly broader in males than in females; and most obvious, the 5th visible sternum is as long as its tergum in the female, but the sternum is much shorter than its tergum in the male, exposing the apices of the male parameres.

Although the primary objective of this article is identification, I must mention a matter of classification uncovered in my studies. The depth of emargination of the 3rd article of the metatarsi has been stressed in keys. Lagar used it in the first couplet of his key, suggesting syriacus to be related to rusticus rusticus, not to ferus. This relationship, however, is not indicated when all characters in my diagnoses are used. Actually syriacus is more similar to ferus than to rusticus rusticus, and in some respects ferus is intermediate. This evidence, though not as obvious as that of the tarsi, probably delineates a truer relationship.

Incidentally, Lagar used the incorrect name Criocephalus Mulsant for this genus; Linsley (1962:68) used the correct name Arhopalus and gave synonymy and type-species. Also, Lagar did not use the subspecies status for rusticus.

1/ Systematic Entomology Laboratory, IIBIII, ARS, USDA. Mail address:
c/o U.S. National Museum of Natural History, Washington, DC 20560.

Key to Adults of Arhopalus of Europe and the Mediterranean Area

1. Third article of metatarsi dorsally emarginate almost to base (Fig. 4, 6); lateral edge of elytra at posterior third in cross section obviously convex (Fig. 11), slightly convex or flat (Fig. 13); elytra with sutural angles angulate (Fig. 7), rounded or almost rounded (Fig. 8, 10); eye with long, dense, obvious setae, or with short, sparse, obscure setae . . 2
- 1'. Third article of metatarsi dorsally emarginate to approximately half length (Fig. 5); lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 12); elytra with sutural angles rounded (Fig. 9); eye with short, sparse, obscure setae ferus (Mulsant)
- 2(1). Lateral edge of elytra at posterior third strongly convex (Fig. 11); elytra with sutural angles angulate or almost rounded (Fig. 7, 8); eye with long, dense, obvious setae rusticus rusticus (Linnaeus)
- 2'. Lateral edge of elytra at posterior third flat or only slightly convex (Fig. 13); elytra with sutural angles rounded (Fig. 10); eye with very short, sparse, obscure setae syriacus (Reitter)

Arhopalus rusticus rusticus (Linnaeus)

1. Eye narrower than in ferus or syriacus, distance from lower lobe of eye to edge of buccal cavity equal to or more than diameter of base of 3rd antennal article. 2. Eye with setae long, dense, and obvious. 3. Male antenna reaching to middle of 2nd visible abdominal sternum; female antenna reaching to metacoxa. 4. Male antenna with moderately long setae ventrally, length of setae on 3rd article equal to or less than diameter of 9th article. 5. Maxillary palpus with last article narrow (Fig. 1). 6. Lateral edge of elytra at posterior third in cross section strongly convex (Fig. 11). 7. Elytra with sutural angle usually angulate, sometimes with weak spine, or occasionally almost rounded (Fig. 7, 8). 8. Metatarsus with 3rd article emarginate almost to base (Fig. 4). 9. Male with 8th tergum evenly rounded, truncate, or very slightly emarginate at apex (Fig. 20). 10. Parameres long and very narrow (Fig. 14). 11. Penis narrow, narrower than in either ferus or syriacus (Fig. 17). 12. Ovipositor with 2 narrow styli at apex (Fig. 23).

Distribution: Europe. [Four subspecies of rusticus occur in the United States, as recorded by Linsley (1962:73) and Chemsak and Linsley (1965:141). The subspecies rusticus rusticus does not occur in North America.]

Arhopalus ferus (Mulsant)

1. Eye wider than in rusticus rusticus, distance from lower lobe of eye to edge of buccal cavity less than diameter of base of 3rd antennal article. 2. Eye with setae very short, sparse, and obscure. 3. Male antenna reaching to middle of 2nd visible abdominal sternum; female antenna reaching to metacoxa. 4. Male antenna with moderately long setae ventrally, length of setae on 3rd article equal to or less than diameter of 9th article. 5. Maxillary palpus with last article moderately wide (Fig. 2). 6. Lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 12). 7. Elytra with sutural angle rounded (Fig. 9). 8. Metatarsus with 3rd article emarginate to approximately half length (Fig. 5). 9. Male with 8th tergum deeply emarginate at apex (Fig. 21). 10. Parameres short, broader than in rusticus rusticus, and slightly narrower than in syriacus (Fig. 15). 11. Penis broad, slightly broader than in syriacus (Fig. 18). 12. Ovipositor with 2 broad styli at apex (Fig. 24).

Distribution: Europe, Siberia.

Arhopalus syriacus (Reitter)

1. Eye wider than in rusticus rusticus, distance from lower lobe of eye to edge of buccal cavity usually equal to diameter of base of 3rd antennal article.
2. Eye with setae very short, sparse, and obscure.
3. Male antenna reaching 5th visible abdominal sternum; female antenna reaching apex of 1st visible abdominal sternum.
4. Male antenna with long setae ventrally, length of setae on 3rd article greater than diameter of 9th article.
5. Maxillary palpus with last article broad (Fig. 3).
6. Lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 13).
7. Elytra with sutural angle rounded (Fig. 10).
8. Metatarsus with 3rd article emarginate almost to base (Fig. 6).
9. Male with 8th tergum shallowly emarginate at apex (Fig. 22).
10. Parameres short, broader than in rusticus rusticus, and slightly broader than in ferus (Fig. 16).
11. Penis broad, slightly narrower than in ferus (Fig. 19).
12. Ovipositor with 2 narrow styli at apex (Fig. 25).

Distribution: Mediterranean area.

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- Chemsak, J.A. and E.G. Linsley. 1965. New genera and species of North American Cerambycidae (Coleoptera). Pan-Pacific Entomol. 41:141-153, illus.
- Lagar, A. 1969. El género Criocephalus Mulsant en la Península Ibérica y Baleares (Col. Cerambycidae). Graellsia 24, 1968(1969):95-100, illus.
- Linsley, E.G. 1962. The Cerambycidae of North America. Part II. Univ. California Pub. Entomol. 19:1-102, illus.

RUSTICUS RUSTICUS (L.)

FERUS (MULSANT)

SYRIACUS (REITTER)

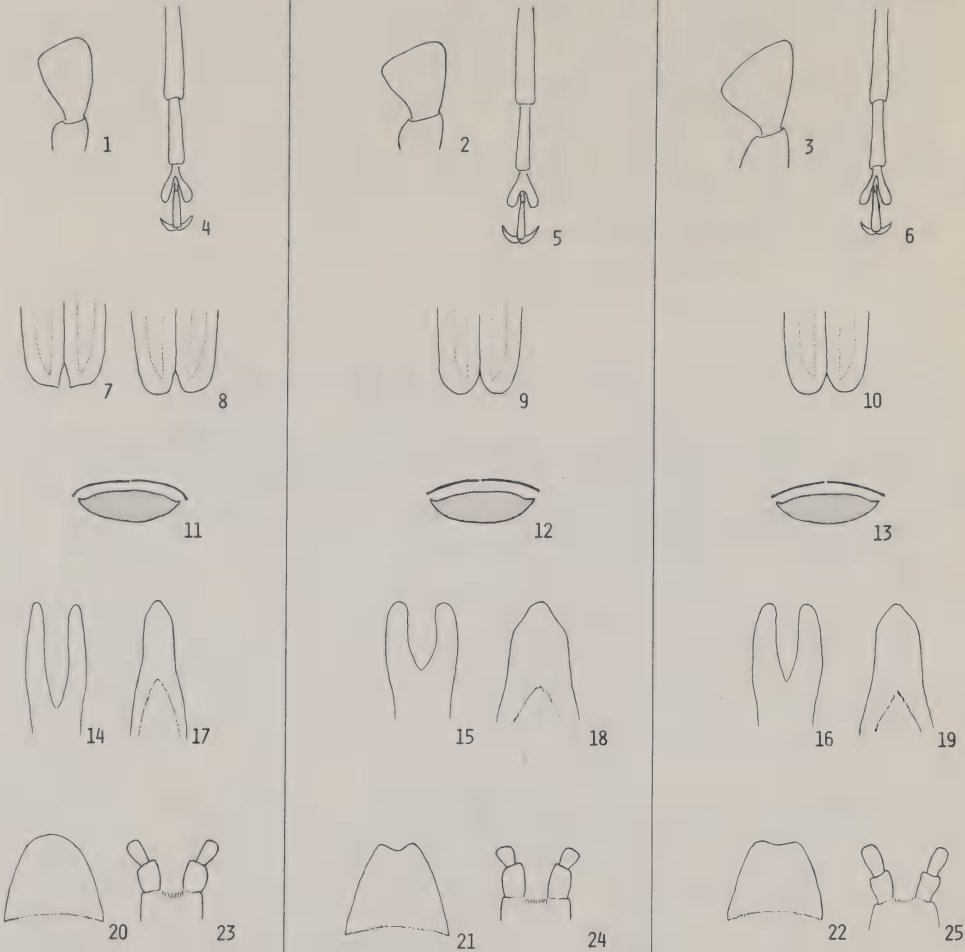
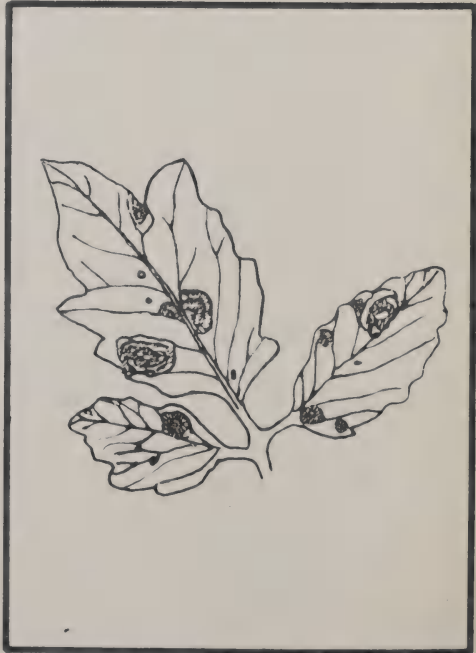
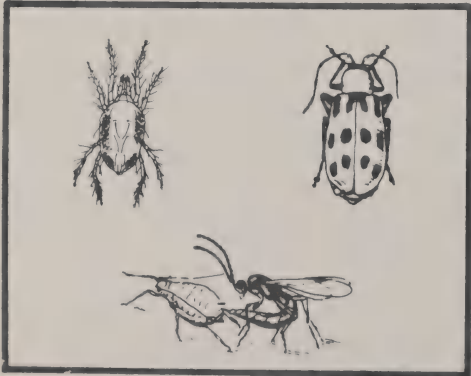


Fig. 1-25, *Arhopalus rusticus rusticus* (L.), *A. ferus* (Mulsant), and *A. syriacus* (Reitter). 1-3, last segment of maxillary palpus. 4-6, metathoracic tarsus. 7-10, apex of elytra. 11-13, cross section of elytra and abdomen at posterior third of elytra, diagrammatic. 14-16, apex of parameres. 17-19, apex of penis. 20-22, 8th tergum of male. 23-25, apex of ovipositor.

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(10):127-130, 1977

Official Business
Penalty for Private Use, \$300



255823

453

VOL. 2 NO. 11

March 18, 1977

Cooperative PLANT PEST REPORT



Animal
and Plant
Health
Inspection
Service

U.S.
DEPARTMENT
OF AGRICULTURE



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG 100+ per row foot in parts of southwestern Oklahoma and the adjoining area in Texas. (p. 133).

Winter survey for CHINCH BUG in Kansas revealed severe numbers in 4 counties in the central, east-central, and southeast districts. (p. 135).

Detection

New State record for MEADOW SPITTLEBUG in Nebraska. (p. 144).

For new county records see page 136.

Some First Occurrences of the Season

GREENBUG and WINTER GRAIN MITE in Kansas. MORMON CRICKET nymphs in Idaho. ALFALFA WEEVIL larvae and CLOVER LEAF WEEVIL larvae in Kansas. TARNISHED PLANT BUG adult in Oklahoma. NANTUCKET PINE TIP MOTH adults in Alabama. CLOVER MITE adults in California. APHIDIID WASP adults in Oklahoma.

Special Reports

Summary of Pest Conditions in the United States - 1976

Forage Legumes. (p. 138-147).

Soybeans. (p. 147-148).

Peanuts. (p. 148-149).

Cotton. (p. 149-152).

Distribution of Alfalfa Weevil (map). (p. 140).

Distribution of Blue Alfalfa Aphid (map). (p. 145).

Distribution and Identification of Blue Alfalfa Aphid, Acyrtosiphon kondoi, Shinji (Homoptera: Aphididae). (p. 153-156).

Reports in this issue are for the week ending March 11 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae, 0.5-1 inch long, averaged 0.2 per square foot of 4-inch, 7-tiller wheat in Kingman County, concentrated along field border. (Bell).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light near Roswell, Chaves County; 2 per wheat plant in one wheat field. (NM Coop. Rep.). TEXAS - Counts per row foot of small grains by date and county: February 28--Hardeman, Knox, Stonewall, Throckmorton, and Young ranged 1-25, Fisher ranged 26-250 in some fields; March 7--Archer, Baylor, Fisher, Foard, Hardeman, Motley, Throckmorton, Wichita, and Young ranged 2-50 in many fields, Fisher, Foard, Motley, Kent, and Wichita ranged 100-300 in few fields, 400-800 in damaged spots (Boring); and March 8--south-central area increased (Cole). OKLAHOMA - Counts per row foot of wheat by county: Washita and Beckham 0-5,000; Caddo light; Kiowa, Jackson, and Greer very light in some areas, Greer up to 700, Jackson up to 600, Kiowa up to 160; Tillman 10-120; Lincoln 7; Pottawatomie 7; McClain 0.25 and 8; Seminole 0.5; Garvin 17 and 35; Murray 1 and 12; Carter 110; Johnson 1; Marshall 30; and Bryan 110. (OK Coop. Surv.). KANSAS - First of season trace in field of 4-inch, 7-tiller wheat in Chautauqua County. (Bell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Moderate to heavy on alfalfa in scattered areas with one fall-planted field averaging 3,000 per row foot in Washita County. Other averages per square foot by county: Garvin 15, Bryan 3, and Choctaw 3. (OK Coop. Surv.).

CORN, SORGHUM, SUGARCANE

INSECTS

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - KANSAS - Three overwintered larvae found in 50 previously infested cornstalks in one pastured field in Sedgwick County; these surviving larvae appeared weak and flaccid. (Bell).

SMALL GRAINS

DISEASES

SOIL-BORNE WHEAT MOSAIC VIRUS - OKLAHOMA - Infected 10 percent of wheat in Garfield, Kay, Kingfisher, Major, Noble, and Payne Counties. (OK Coop. Surv.). KANSAS - Appeared in wheat in parts of south-central and central areas. Percent plants infected in fields surveyed by county: Sedgwick 5-50, Sumner trace to 10, Harper 15-20, Barber trace, Kingman trace to 60, Reno 10, Rice 5, and Harvey 10. Symptoms in about 20 percent of fields surveyed. Wheat in tillering stage and 4-5 inches tall. No symptoms in smaller wheat in area. (Bell).

WHEAT POWDERY MILDEW (Erysiphe graminis var. tritici) - OKLAHOMA - Trace in 4 wheat fields in Muskogee County. (OK Coop. Surv.).

INSECTS

AN APHID (Rhopalosiphum padi) - TEXAS - Counts per row foot of small grains by date and county: February 28--Fisher and Wichita ranged 1-5 in few fields; and in most fields March 7--Foard, Motley, and Wichita ranged 1-25, Motley up to 100, and Wichita up to 64. (Boring). OKLAHOMA - Light to moderate in Jackson and Greer Counties and light in Kiowa and Tillman Counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Heavy in many wheat fields in Washita and Beckham Counties. Some fields have both this and WINTER GRAIN MITE (Penthaleus major). Much damage in some fields. Petrobia latens moderate to heavy in one field in Greer County last period but decreased to 10 per row foot this period. Light to moderate in Jackson County; up to 8 per leaf in irrigated wheat in Texas County. Penthaleus major 1-8 per row foot in few fields in Lincoln, Pottawatomie, Murray, and Johnson Counties. (OK Coop. Surv.).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - First of season under clods in wheat field in Harvey County March 9. (Bell).

TURF, PASTURES, RANGELAND

INSECTS

MORMON CRICKET (Anabrus simplex) - IDAHO - First nymphs of season hatched at Teapot Basin, Elmore County, February 18. (Pollard).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Second and third instar larvae active in Artesia area, Eddy and Chaves Counties, week ending March 4. Larvae 3-5 per crown (15 stems) on grazed fields. Frost will probably cause more damage than larvae will in next 30 days. Currently, second and third instar larvae continued active in Eddy and Chaves Counties; little damage apparent. (NM Coop. Rep.). OKLAHOMA - Larvae in alfalfa terminals in southern half of State. Infested terminal counts by county: Greer 3-18 percent (1-6 larvae per terminal), Jackson 0-15 percent, Harmon light, Tillman light, Washita 5-25 percent, Grady 10 percent, Garvin 0.5-10 percent in most fields but 50 percent in one field, Stephens 3-24 percent, Murray 16 percent, Bryan 14 percent, Muskogee one percent, and Choctaw 4 percent. Eggs continued light in Grady and Stephens Counties, averaging about 15 per square foot. (OK Coop. Surv.). KANSAS - Adults averaged 3 per 100 sweeps of dead alfalfa stems in Chase County field March 8. First larvae (first instars) of season trace on one to two-inch alfalfa in Greenwood, Montgomery, and Elk Counties. Larval averages per green stem by county (one field per county): Greenwood 0.04, Elk 0.04, and Montgomery 0.02. (Bell). KENTUCKY - Eggs averaged 4.8 and 16.4 per square foot in 2 alfalfa fields in Warren County February 8 and 10; 4.0 per square foot in Larue County field February 9; and 6.4 and 4.4 per square foot in 2 Shelby County fields March 7. (Christensen et al.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - First larvae (up to 0.25 inch) of season averaged 0.06 per green stem on one-inch alfalfa in Barber County. (Bell).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Nymphs and adults collected on Medicago sativa (alfalfa) at Soledad, Monterey County, by B. Oliver and R. Hobza, April 1, 1976. Adults collected on Medicago sativa (alfalfa) at Valyermo, Los Angeles County, by D. Williams, J. Heuer, and G. Mork, April 6, 1976. Both determined by T. Kono. New county records. (CA Pest Rep.). NEW MEXICO - Nymphs of this species and PEA APHID (A. pisum) up to 30 per trifoliate leaf on one in 10 stems on Dona Ana County alfalfa. Slightly lighter near Roswell and East Grand Plains, Chaves County, with 15-20 per trifoliate leaf and appearing on one in 20 stems. Populations appear 80 percent A. kondoi and 20 percent A. pisum. (NM Coop. Rep.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Averages per square foot of alfalfa by county: Garvin 15, Bryan 30, Choctaw 20, and Muskogee 2. Light to moderate in Washita County. (OK Coop. Surv.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - First adult of season on alfalfa in Muskogee County this period. (OK Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - First adults of season, 1-10 per 6-foot shortleaf pine at Auburn, Lee County, March 8. (McQueen).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - KENTUCKY - Harsh winter weather appears to have reduced overwintering population in southern area. Of 220 larvae and pupae dissected from bark samples, none alive. Samples taken from 5 shortleaf pines and one Virginia pine near Pineville, Bell County, January 31 and March 3. Trees known to have active larval broods in November 1976. (Nordin).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Flights of male moths heavy at Wichita, Sedgwick County, and Rossville, Shawnee County. (Bell).

MAN AND ANIMALS

INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - First adults of season at Fresno, Fresno County. (CA Pest Rep.).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN APHIDIID WASP (Lysiphlebus testaceipes) - OKLAHOMA - First adults of season in wheat in Jackson and Greer Counties. Parasitized less than one percent of Schizaphis graminum (greenbug) and oat aphids. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

INSECTS

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Results of 1977 Winter Survey of overwintering populations in bunchgrass indicated heavy infestations most likely to occur in wheat, sorghum, corn, and lawns in at least some areas in the following counties: Marion, McPherson, Morris, Butler, Cowley, Harvey, Sedgwick, Dickinson, Geary, Riley, Republic, Washington, Marshall, Brown, Doniphan, and Lyon. Most serious infestations expected in parts of Morris, Marion, McPherson, and Cowley Counties. Threat of damaging infestations in 1977 could be canceled or reduced by a naturally occurring fungus Beauveria globulifera with warm, humid weather, and by frequent beating rains, impeding hatch and survival of young nymphs. (Bell).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Trapping activities on schedule. High winds caused some damage and loss of traps, and delayed treatments. Status of treatment by area week ending March 11: Hollywood fifth treatment completed, central Los Angeles sixth treatment completed, La Crescenta seventh treatment completed, Santa Monica seventh treatment 50 percent completed, Pico Rivera eighth treatment 60 percent completed, and Inglewood ninth treatment 50 percent completed. (CA Pest Rep.).

SCREWWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. February 20-26; only one case has been reported this year. Total of 76 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 784 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 123,099,000, all in Texas. Total of 132,661,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

HAWAII PEST REPORT

General Vegetables - LEAFMINER FLIES (Liriomyza spp.) heavy on 3 acres of green onions (60-75 percent of leaves moderately mined) at Waianae Valley, Oahu, and on 2 acres of tomatoes at Kihei, Maui. Light to moderate on another 5 acres of tomatoes (younger fruiting plants) at Kihei, on 3 acres of pole beans at Waianae Valley, and on one acre of tomatoes, 2 acres of green onions, 0.25 acre of hyotan squash, and 2 acres of bulb onions at Lualualei, Oahu. (Miyahira, L. Nakahara). CARMINE SPIDER MITE (Tetranychus cinnabarinus) severe (all leaves; 100+ mites per square inch) on one acre of pole beans at Waianae Valley. Ranged moderate to heavy on another 0.5 acre of young pole beans at Waianae Valley and on 3 acres of eggplants at Kapahi, Kauai. BROAD MITE (Polyphagotarsonemus latus) counts heavy (90 percent of terminals affected) and damage moderate on 2 acres of green peppers at Lualualei. (L. Nakahara). CHINESE ROSE BEETLE (Adoretus sinicus) damage heavy (80 percent of leaves; 10-70 percent defoliation per leaf) on plantings of snap beans and eggplants at Kaumakani, Kauai. (Sugawa).

Snail Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity declined in various localities on Kauai during February, partly due to dry conditions and baits. No new snails from Kekaha, Kauai (most recent infestation), since baiting initiated. (Sugawa). Total of 6,561 specimens of BROWN GARDEN SNAIL (Helix aspersa) collected as of February 28 from infestation site at Waimea, Hawaii Island, to eradicate this pest. During last 5 weeks (10 collection dates) of the data period, 432 snails discovered. Of this number, 17 percent of snails were 21 mm or larger. Unusually dry conditions in treatment area hampered eradication program. (Entomol. Branch, State Dep. Agric.).

DETECTION

NEW STATE RECORDS

INSECTS

MEADOW SPITTLEBUG (Philaenus spumarius) - NEBRASKA - Saunders County. (p. 144).

NEW COUNTY RECORDS

DISEASES

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - Trousdale (p. 147).

INSECTS

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Monterey and Los Angeles (p. 134); KANSAS - Pottawatomie (p. 146).

ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Richland, Sargent (p. 141); TEXAS - Hudspeth, Culberson, El Paso (p. 139).

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	Life Stage	Host	Probable Origin	Port of Entry	Desti- nation
<u>Puccinia horiana</u> P. Henn. a rust Det. W.H. Taussig	uredial	on leaves of <u>Chrysanthemum</u> from baggage	Korea	Anchorage	SC
<u>Uromyces vicia fabae</u> (Pers.) Schroet. uredial a rust Det. J. Litton	uredial	on lentil pods from ship's stores	Peru	Mobile	AL
<u>Aleurolobus rhododendri</u> Takah. a whitefly Det. M. Stoetzel	pupal	on leaves of <u>Azalea</u> cuttings from mail	Japan	San Francisco	MD
<u>Camponotus sexguttatus</u> (Fabricius) an ant Det. D.R. Smith	adult	in lumber	Brazil	Savannah	NC
<u>Cossus cossus</u> Linnaeus a cossid moth Det. C.E. Miller	larval	in wood pallets with tile	Italy	San Juan	PR
<u>Haemaphysalis</u> sp. a hardbacked tick Det. R.R. Gerrish	nymph	with bales of cork bark	Portugal	Baltimore	MD
<u>Trogoderma granarium</u> Everts khapra beetle Det. J.M. Kingsolver	larval, adult	in storeroom of ship	unknown	Port Arthur	---
<u>Vinsonia stellifera</u> (Westwood) a soft scale Det. C.E. Miller	adult	on orchid plants from baggage	U.S. Virgin Islands	St. Croix	FL

FORAGE LEGUMES

Highlights

ALFALFA WEEVIL was serious on alfalfa in Washington. Infestations in New Mexico extended southward. Larval infestations were heavy in Oklahoma. Significant amounts of damage occurred in parts of Nebraska. Problems were severe on alfalfa in Iowa; treatments were needed in almost all fields in the southern area. The estimated dollar loss in Illinois was about \$3 million. Damage to alfalfa in Ohio was heavier than in the past 2 years. FALL ARMYWORM infestations were moderate to heavy and widespread in Oklahoma. BLUE ALFALFA APHID was heavy in California and Nevada.

INSECTS

ALFALFA WEEVIL (*Hypera postica*) continued as a serious pest on alfalfa in timothy and alfalfa stands in Kittitas County, WASHINGTON, in 1976. Alfalfa weevil infestations were light throughout the seed alfalfa areas of Washington in 1976. An unusually heavy (10 per sweep) late season adult population caused extensive leaf notching in one field in Walla Walla County. Development and infestations on alfalfa in NEVADA in 1976 generally followed those of 1975, but less acreage required treatment than in that year. Egg laying, hatch, and larval development were again later than usual. Eggs were first observed in the central, northern, and western areas in late April and early May. Larvae were first observed in mid-May. Larval infestations developed slowly and over an extended period with peak populations occurring in early to mid-June. Larval populations were reduced with the heaviest infestations generally less than 70 per sweep. Chemical controls were applied to about 41,000 acres of hay and seed alfalfa from mid-May to mid-June with the majority receiving treatment in late May and early June. By comparison, 90,000+ acres were treated in 1974 and about 51,000 acres were treated in 1975.

Alfalfa weevil infestations increased slowly in forage legumes in the spring of 1976 in northern and central UTAH. Populations were lighter than normal but heavier than in 1975. The first crop injury was lighter than normal. Much stubble control was done to prevent a later population increase. Damage will probably exceed \$3 million. Populations were light to moderate throughout the alfalfa areas of IDAHO in 1976. Treatment was applied in only a few cases which is very abnormal. Adults first appeared in 1976 in MONTANA on alfalfa in Cascade and Blaine Counties May 26. No larvae or damage could be found. On June 9, adults were mating in Chouteau County and nearly 20 larvae per sweep with heavy damage were evident in Broadwater County. By June 15, heavy infestations were reported in the northeast area. Harvesting operations in lieu of chemical controls were impaired by very wet weather. By July 2, damage was heavy in some alfalfa fields in the central and southeast areas.

The first alfalfa weevil larvae of the season were collected in Chaves County, NEW MEXICO, during the week of March 5, 1976, and in Dona Ana County, March 18. By April 30, larvae at the rate of 2 per sweep were collected at Socorro area, Socorro County, extending the southward range by about 30 miles. Populations ranged 3-5 per 25 sweeps in Bernalillo County by this time. A westward movement into the Hondo Valley of Lincoln County from Chaves County was noted in early May. Up to 150 larvae and 4 adults per 25 sweeps were common with noticeable damage in Valencia and Bernalillo Counties. Alfalfa weevil populations in most

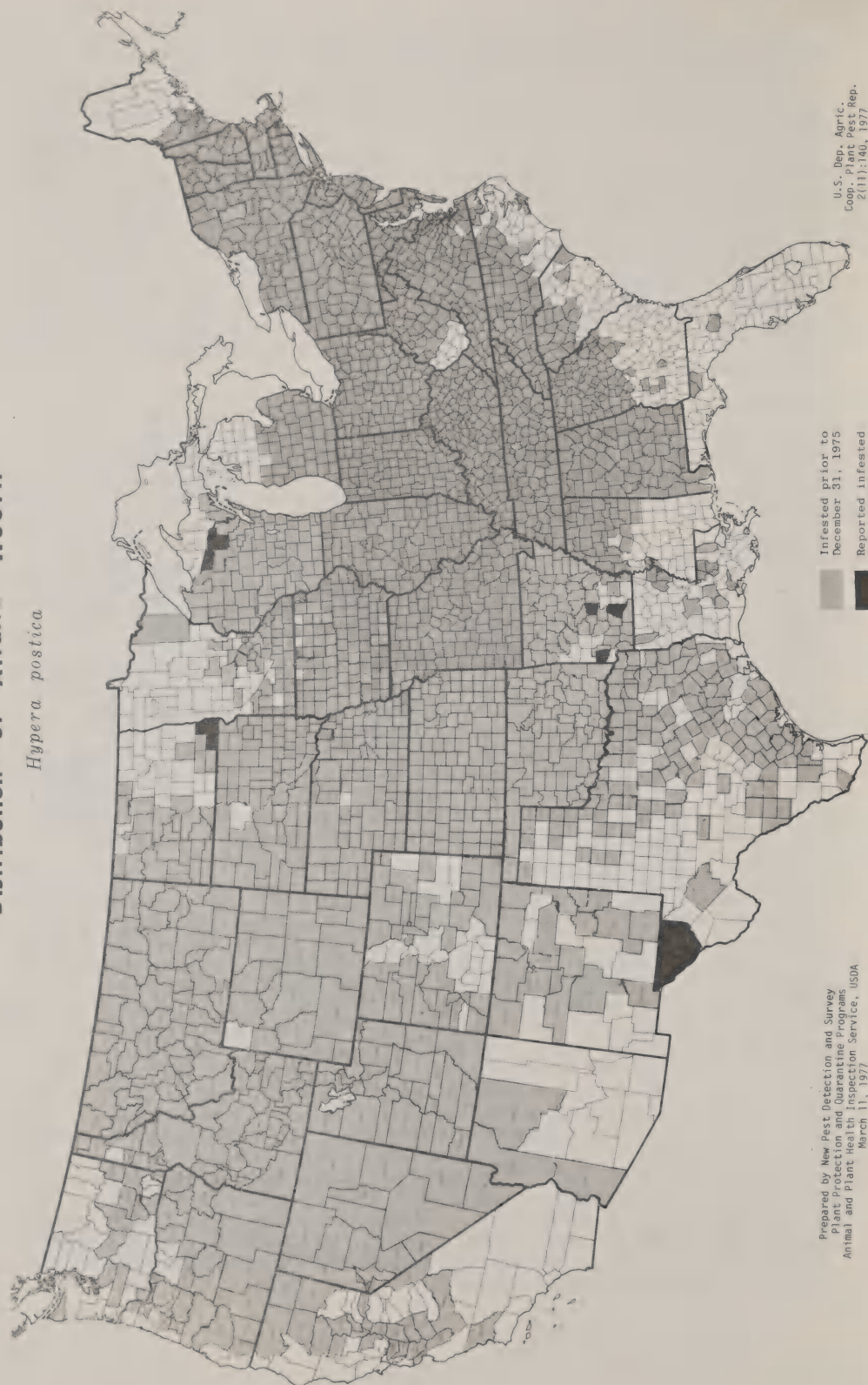
cases were reduced below economic levels by the first cutting in New Mexico. Late summer populations will probably contribute to large 1977 spring populations. The first larval infestations in alfalfa were reported at one per square foot in Hale County, TEXAS, about February 27, 1976. Treatments began 7 days later in Fannin County. Larvae ranged 3-6 per square foot in Pecos County by March 11. Populations in the Panhandle area gradually increased from 0-35 per square foot about April 30 to a peak of 25-75 per square foot the week of May 21. Most areas of the High Plains and Panhandle received treatments. Populations decreased sharply after June 1 everywhere except in the Trans-Pecos area which had light populations. Bathyplectes curculionis (an ichneumonid wasp) was recovered from 3.5 percent of the weevils collected on March 29 in Hale County. New county records for alfalfa weevil were reported on alfalfa at: Acala, Hudspeth County, March 16, 1976, by C.W. Neeb, determined by H.R. Burke; at Lobo Flats, Culberson County, March 17, 1976, collected and determined by C.W. Neeb; and at Clint, El Paso County, June 11, 1976, by C. Burgess, determined by B. Eads and H.R. Burke.

Alfalfa weevil larvae in OKLAHOMA began hatching on alfalfa in early January 1976 in many areas due to mild winter temperatures. Unusually cold weather killing larvae that hatched in January and most of February contributed to somewhat lighter than usual populations in many areas. Heavy larval infestations were present in most areas by early March in the southern half of the State and by mid-April in the Panhandle and northwest counties. Egg laying continued through most of March. In the southern counties, pupation began by mid-March and adult emergence by mid-April. Heavy larval infestations continued into early April in the southern counties, into early May in the west-central counties, and into mid-May in the Panhandle counties. Light larval activity continued through June in some areas. Adult activity in the fall was first noted in mid-November in Payne County. The first seasonal occurrence in ARKANSAS was in mid-February 1976 in the south area and in early March in the north area. Treatments began in early February in the south and in mid-March in the north. Infestations were not as heavy as in some years with the heaviest counts ranging 400-500 per 100 sweeps. Treatment was applied to 70 percent of the acreage. Three new county records were reported. Infestations were lighter in all areas of KANSAS, except in the northwest district, in 1976 than in 1975 and especially in the southwest, west-central, and north-central districts. Unlike 1975, very little acreage needed more than one treatment. The lighter infestations of 1976 follows a trend that began in 1975 and hopefully will continue.

Alfalfa weevil populations in NEBRASKA during 1976 decreased slightly in the southeast, south, and southwest, but greatly increased in the east, central, north, and northeast, where infestations caused a significant amount of damage to first-cutting alfalfa. The first weevil activity was observed in Richardson County April 7; larvae averaged about 4 per 100 sweeps. Populations continued to increase in the southeast area, peaking about May 20 with an average of 1,100 larvae per 100 sweeps in Otoe County. Populations peaked in Greeley County about May 26 at about 4,000 larvae per 100 sweeps and in Antelope, Cedar, Dixon, Dakota, and Knox Counties at up to 10,000 larvae per 100 sweeps. In most areas of the State, the majority of the damage was over by June 1 and pupation was well underway. Adults were reported moving from haystacks, causing localized heavy damage to regrowth, in fields in Antelope, Holt, and Knox Counties June 21. Infestations remained a serious problem on alfalfa in southern IOWA in 1976. Eggs ranged 20-74 per square foot in southeastern alfalfa fields during the week ending April 16. First instar larvae were detected in alfalfa tips in Lee and Van Buren Counties. First alfalfa weevil activity began about 21 days earlier than in 1975. Egg laying increased in the southern counties during the week ending April 23, but cool weather reduced development. Moderate damage was reported in alfalfa in southern

Distribution of Alfalfa Weevil

Hypera postica



Prepared by New Pest Detection and Survey
Program
Plant Protection and Quarantine Service, USDA
Animal and Plant Health Inspection Service, USDA
March 11, 1977

Infested prior to
December 31, 1975
Reported infested
during 1976

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(11):140, 1977

Iowa during the last week in April with 1-3 alfalfa weevil larvae per stem. Although pupae were present during the first week of May, increased damage was noted in southern fields where almost all fields justified chemical treatments. In the western counties, 70-93 percent of the larvae were still in the early instars. By the third week in May, economic damage had progressed to mid-State. Severe damage was caused in Ida county by second and third instar larvae. By the last week of June, adults prevented alfalfa regrowth in Cherokee and Sac Counties. Adult damage was also reported during the first week in July from 6 to 8-inch alfalfa in Crawford County. Economic damage to alfalfa in 1977 is expected in the southern one-half and western one-third of the State or on about 1.5 million acres.

Alfalfa weevil adults averaged 3 per 100 sweeps of forage legumes in McKenzie County, NORTH DAKOTA, by May 14, 1976. By June 25, up to 46 larvae per 100 sweeps infested alfalfa in Williams County. Alfalfa weevil collections that were new county records in 1976 were taken on alfalfa in Richland County (city unknown) by C.G. Scholl, May 20, determined by W.J. Brandvik; and near Straubville, Sargent County, May 27, collected and determined by C.G. Scholl. Infestations were a serious problem on corn in the extreme southern tier of counties in SOUTH DAKOTA in 1976. Up to 150 third and fourth instar larvae per sweep were observed the first week in June in Yankton County. Isolated damage by weevils was reported as far north as Minnehaha County.

Alfalfa weevil first laid eggs in WISCONSIN in 1976 at Arlington, Columbia County, in an outdoor insectary April 2-6. Survival of eggs laid between October 13 and November 11, 1975, was high, and hatching began April 15 and peaked April 20 following warm temperatures. There were two distinct larval hatches: One from fall-laid eggs and one from spring-laid eggs. Adults and larvae were light in late April in the south-central, southwest, and west-central areas. By early May, larvae from fall-laid eggs were present in most alfalfa fields as far north as Green Bay and Door Counties. The hatch of spring-laid eggs began in mid-May in the southern counties where larvae ranged 0-24 per 100 sweeps. Light damage was noticeable in the southeast district in late May and became noticeable in the east-central, south-central, and southwest districts by mid-June. Yield reductions of 50 percent or more in first-cutting alfalfa were observed in Door County and chemical treatment was applied. Heavy larval populations were found in many individual alfalfa fields throughout the State but early harvest of the first cutting reduced high numbers before much damage occurred. Larval populations in alfalfa regrowth never became significant. Infestations were observed in three counties for new county records.

Alfalfa weevil populations in ILLINOIS built up sharply in late February and in March 1976 because of unseasonably warm weather. By the first week in April, terminal feeding was up to 90 percent in occasional Edgar County and Washington County alfalfa fields. Damage was generally heavy enough by the second week in April to require treatment in most fields in the east-southeast, southwest, and southeast districts and a few fields in the central counties. By the third week in April most alfalfa in the southern half of the State needed or had already received treatment. Weevil activity peaked in the last week of April and cool weather slowed development. By the first week in May, activity had subsided in the southern half of the State and egg laying and hatching were virtually completed. Emergence of new spring adults was already underway in the southern third of the State and many larvae in the central areas had pupated. Damaging activity was essentially completed statewide by the end of May. Predator and parasite populations had by this time built up to sufficient levels to limit damage. The estimated dollar loss from alfalfa weevil was approximately \$3 million, including control costs. Benefits from

treatment of 215,000 acres were estimated at \$6.5 million, over and above dollar losses from control costs and damage. Potential alfalfa weevil damage to alfalfa in 1977 is difficult to predict, but damage is expected to be moderate to severe in the southern three-fourths of Illinois and light to moderate in the northern one-fourth.

Alfalfa weevil eggs in INDIANA in 1976 were present at average rates of 80 per square foot of alfalfa in the northern third of the State, 48 in the west-central, 100 in the east-central, and 260 in the southern districts. By February 25, eggs decreased to 120 per square foot in the southwest, as hatching began. By March 12, larvae averaged 2.5 per infested stem in alfalfa that averaged 2.8 inches tall in the southwest district. By March 24, 10 percent of the stems in Harrison County contained spring-laid eggs. By April 2, untreated alfalfa 4.9 inches tall in the same county had 5.6 larvae per infested stem and an average of 1.5 eggs per stem. In Indiana, south of U.S. Highway 50, overwintering eggs survived at rates great enough to produce economically significant larval populations. Because treatments had to be applied so early that they were no longer effective when spring-laid eggs hatched, a second chemical treatment was necessary on the first cutting or on the stubble right after harvest. In the area between U.S. Highway 50 and a line through Indianapolis, a single treatment sufficed and was generally necessary. North of Indianapolis to U.S. Highway 30, damage was evident but not usually economic. North of U.S. Highway 30, one treatment or early harvest was generally necessary to prevent economic damage.

Alfalfa weevil larvae were observed in 4 forage legume fields in TENNESSEE the week of February 2, 1976. Larvae ranged 0-2 per terminal in fields checked with 10 percent of the terminals infested. Larvae ranged from 42 per 50 tips in Davidson County, to 160 per 50 tips in Franklin County the week of March 5. Populations observed that week indicated controls would be needed to produce a good first cutting of hay. By April 1, many fields in the State had been treated and controls were effective when applied. Untreated fields continued to have damaging populations throughout April. Most fields had been cut by May 1 and damage remained light during the remainder of the season. Eggs on forage legumes in Fayette County, KENTUCKY, averaged 13.4, 24.9, and 11.0 per square foot in December 1975 and January and February 1976, respectively. Counts of third or fourth instar larvae in late April corresponded with the control program used: 3 per 30 stems for long-residual insecticide applied in early April and 14-19 per 30 stems for short-residual insecticide. Two treatments of short-residual insecticide kept larval populations light.

Alfalfa damage in the southern and eastern two-thirds of OHIO in 1976 was heavier than in the past 2 years. Larval populations began developing 14 days ahead of normal in the southern area and control sprays were being applied in the extreme southwestern counties by April 13. By the third week of April, economic infestations existed throughout the southern area with feeding damage on 15-100 percent of the stems and populations up to 1,840 larvae per 100 sweeps. In the central and northern areas, populations did not develop as early. Up to 526 larvae per 100 sweeps were present in the central area by the first week of May with damage levels from 10 to 70 percent and application of control sprays underway. Larval populations peaked statewide by the third week of May. Loss was moderate in untreated fields with 15-90 percent damage and up to 1,128 larvae per 100 sweeps in the northeast area. Populations did not reach the very heavy level in the northwest counties as in the south and northeast areas. The maximum larval count in the northwestern district was 540 per 100 sweeps on May 24. Losses were not as great in that area as in 1975.

Alfalfa weevil populations on alfalfa in SOUTH CAROLINA were about normal in 1976. Fields receiving timely insecticide applications had little economic injury. By March 19, 1976, 42 percent of the tips of alfalfa in VIRGINIA was infested, but the estimated defoliation was only 5.4 percent. Weevils were too small to cause serious damage in many fields. By April 2, tip infestation was 50 percent but estimated defoliation was only 7.5 percent. By April 19, 23 percent of the fields needed treatment. By April 23, 58 percent of the tips was infested, and defoliation was 15.4 percent. Weevils caused serious damage in most fields; 45 percent of the fields needed treatment. Serious damage continued through May 7, when tip infestation was 43 percent, defoliation 18.8 percent, and fields needing treatment 50 percent. By May 14, only 17 percent of the tips was infested, and most fields had been treated.

Alfalfa weevil completely defoliated the first cutting in most untreated fields of alfalfa in WEST VIRGINIA in 1976. The second cutting of alfalfa grew slowly. Yields were low due to extensive damage of the first cutting and due to dry weather. Populations on alfalfa in MARYLAND in 1976 were heavier than the above average levels in 1975. The first significant tip injury occurred in the central and western counties the week ending April 2 with 10-30 percent tip injury (8-10 days earlier than normal), and by April 23, tip injury reached 80-100 percent. Damage was heavy statewide with 75 percent of fields receiving controls. Yield losses for the season averaged 12 percent. In untreated Kent County fields, the yield loss ranged 40-50 percent. Larval populations on forage crops increased considerably over 1975 in DELAWARE; some growers applied treatments.

Damage to alfalfa was lighter in PENNSYLVANIA in 1976 than in 1975. Alfalfa weevil larvae peaked (about 20 per sweep) in untreated fields in the south-central area. Farther north, the heaviest larval population occurred in late May at about 3 per sweep. Adults peaked about 14 days after the heaviest larval counts and were about 3 per sweep in the south-central counties and 0.5 per sweep farther north. The first adult activity on forage crops in NEW YORK was reported from Wayne County, April 21, 1976. In May, larval counts were often fewer than one larva per sweep. Field collections of 5 or more larvae per sweep and significant tip damage were rare during 1976. Diseased larvae and pupae infected with Entomophthora phytonomi (a fungus) were collected June 24 in St. Lawrence and Jefferson Counties.

FALL ARMYWORM (Spodoptera frugiperda) infestations were moderate to heavy and widespread on alfalfa in west-central, central, east-central, southwest, and south-central OKLAHOMA from early August to mid-October 1976. Counts up to 100 per square foot were reported in Stephens County and 100 percent defoliation was reported in untreated fields in some areas. Many fields in these areas were treated. Populations damaged alfalfa in Montgomery County, KANSAS, during mid-July 1976 in an area flooded earlier in July. The next brood damaged scattered fields of alfalfa in several counties in the southeast area from mid to late August. Some infestations needing treatment occurred on alfalfa in Kiowa County in mid-September and in Reno County in mid-October. An infestation in mid-September 1976 totally destroyed a 6-acre field of newly seeded alfalfa in Bourbon County, KENTUCKY.

ALFALFA CATERPILLAR (Colias eurytheme) populations in NEW MEXICO began increasing during late August 1976 and became a major problem by mid-September, destroying up to 20 percent of the late crop alfalfa in Otero and Quay Counties. Populations ranged 10-25 per square foot of alfalfa in Gregg County, TEXAS, April 9, 1976. Light populations were reported early in the Trans-Pecos area but peaked at 20-50 larvae per 100 sweeps about August 13. Adults were heavy in this area September 17.

A total of 60 MEADOW SPITTLEBUG (Philaenus spumarius) adults was taken in 1,280 sweeps of an alfalfa field near Mead, Saunders County, NEBRASKA, July 27, 1976. Adults were collected by G.R. Manglitz, H. Stevens, R. Ronnenkamp, and L. Klostermeyer, and determined by J.P. Kramer. This is a new State record. Infestations in IOWA were heavier in 1976 than in 1975. Nymphs ranged 0.5-0.8 per stem on alfalfa in Ringgold County during the last week of May. During the first week of June, counts averaged more than one per stem on alfalfa in Allamakee and Cass Counties. No significant damage was observed. Nymphal froth masses were first noted on alfalfa and clover about the second week in April 1976, in Jasper County, ILLINOIS. Damage was light through the growing season. The fall adult survey revealed the heaviest populations in the northwest (25 per 100 sweeps), northeast (20 per 100 sweeps), and west (40 per 100 sweeps) districts. These districts have the greatest potential for damage in 1977, although little damage is predicted.

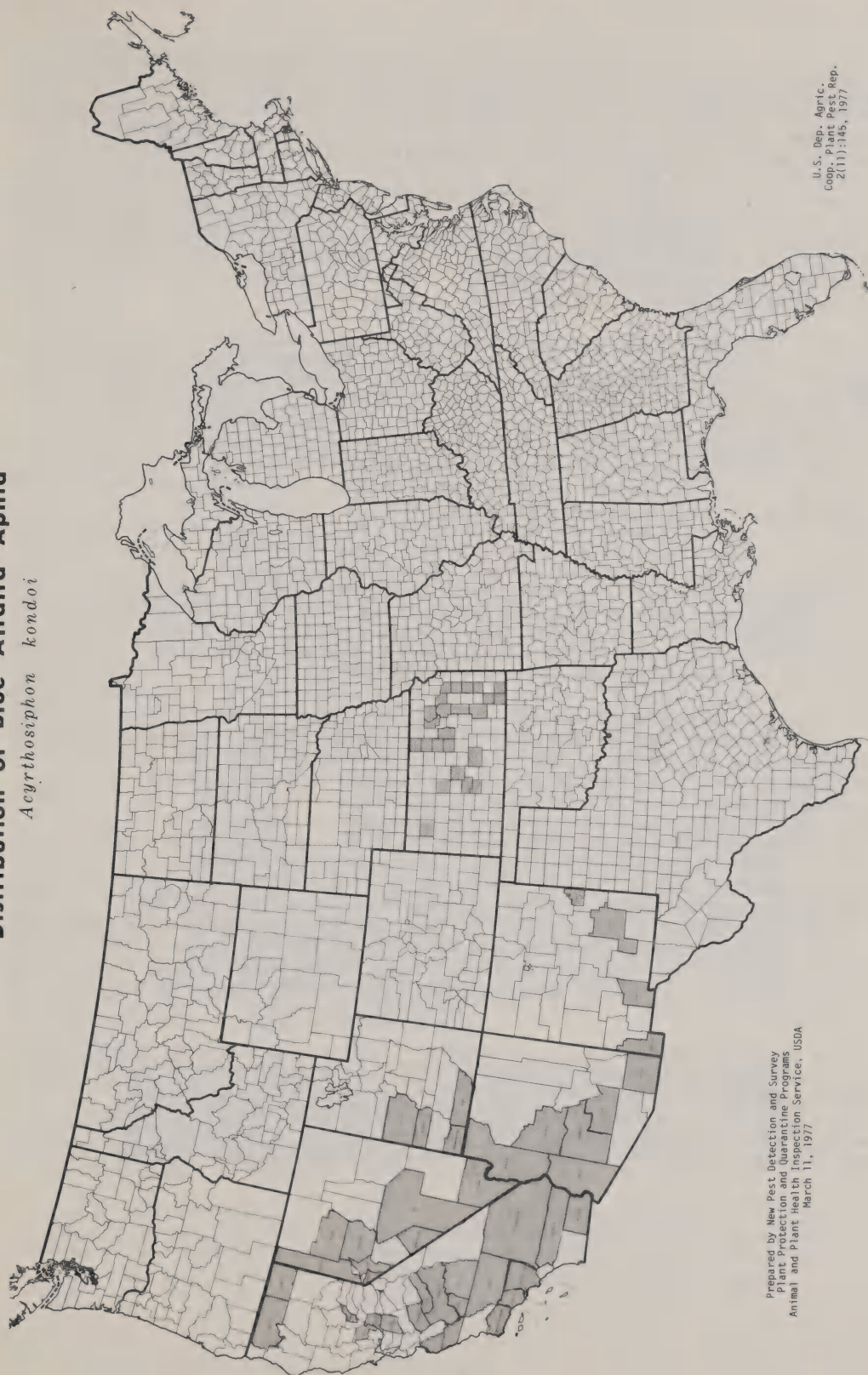
LYGUS BUGS (Lygus spp.) nymphs and adults were present in Humboldt, Lander, and Pershing Counties, NEVADA, seed forage fields by mid-May 1976 but were reduced by prebloom treatments and did not require extensive control measures until July when the majority of the sprays was applied. Control results with the currently recommended material were unsatisfactory in many cases. About 42,000 acres were treated in Humboldt, Lander, and Pershing Counties. This is a reduction of almost 2,500 acres below the 1975 treated acreage, but approximately 7,000 fewer acres were grown for seed in 1976 as compared to 1975.

BLUE ALFALFA APHID (Acyrtosiphon kondoi) infestations were heavy on alfalfa in San Bernardino, Riverside, Kern, and Kings Counties, CALIFORNIA, in 1976. This species has generally displaced PEA APHID (A. pisum) throughout the central and southern area. Heavy, damaging populations of blue alfalfa aphid developed on hay and/or seed alfalfa in Churchill, Clark, Douglas, Esmeralda, Lyon, Nye, Pershing, and Washoe Counties, NEVADA, in 1976. Economic infestations occurred in the southern counties from late March through May and in 2 areas of Clark County again in late November. In the north-central and western counties, infestations generally occurred from mid-May through July although some severe infestations were also present in Churchill County in late April and populations also increased in Washoe County in September. Many fields averaged 300-500 per sweep and counts of up to 2,000+ per sweep were present in Lyon County where unusually heavy infestations occurred throughout July. Severely stunted, yellowed, and deformed plants were present in heavy infestations and in most severe ones, the top foliage of established plants was killed. Almost two-thirds, over 48,500 acres, of the alfalfa acreage treated for aphids were treated for this pest or this pest in conjunction with A. pisum in the above 8 counties.

Blue alfalfa aphid infestations in forage legumes spread to Kane, Beaver, and Millard Counties of UTAH in 1976. It was generally more damaging there and in Washington County than A. pisum during April in Washington County and during

Distribution of Blue Alfalfa Aphid

Acyrtosiphon kondoi



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
March 11, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(11):145, 1977

May and June in the newly infested counties. Blue alfalfa aphids were collected in Dona Ana County, NEW MEXICO, April 13, 1976, for a new State record. Earlier collections made in Virden area, Hidalgo County, were also positively identified. Collections were made at Roswell, Chaves County, during May and June. No further damage was observed through 1976. Specimens were collected for the first time in KANSAS, June 6, 1976, in Riley County on alfalfa. It was subsequently found in 23 other counties (total 24) representing all except the west-central and southwest crop reporting districts. Although potentially capable of causing more damage to alfalfa than the pea aphid, no infestations considered damaging were detected in the State. A previously unreported new county record was established on alfalfa at St. George, Pottawatomie County, May 13, 1976. Specimens were collected and determined by K.O. Bell.

PEA APHID (Acyrtosiphon pisum) population trends and infestation levels in NEVADA in 1976 generally followed those of BLUE ALFALFA APHID (Acyrtosiphon kondoi). In the 8 counties where both species were present, pea aphid usually was less prevalent and constituted a smaller percentage of the populations except in Pershing County where it consisted of 60 percent or more of the total. Treatments for pea aphid were applied to hay and/or seed alfalfa in Humboldt, Lander, and White Pine Counties. Pea aphid infestations in UTAH were a moderate to occasional problem in the spring of 1976, but during late summer it increased to heavy injurious populations in part of Beaver, Millard, Juab, Uintah, and some areas along the "Wasatch front," Payson to Cache and Box Elder Counties. Populations in IDAHO during 1976 were light on untreated forage. In seed areas, the heaviest populations ever reported were observed; repeated treatments gave only partial control. Infestations were light to moderate on alfalfa throughout the 1976 season in the Trans-Pecos area of TEXAS. Infestations in alfalfa were reported from late February to mid-October 1976 in OKLAHOMA. Heavy infestations were reported mostly from the southwestern quarter of the State from late February to late March.

Pea aphid infestations first appeared the last week of May 1976 in MINNESOTA, increased to 200-400 per 100 sweeps by the first week of July, and reached 2,000-6,000 per 100 sweeps in some alfalfa fields 14 days later. Most of the State had at least 2 cuttings of alfalfa and damage from aphids was not significant. Hatch began on Dane County, WISCONSIN, alfalfa in late March 1976, but populations did not exceed 6 per 100 sweeps by mid-April in the south-central and west-central counties. At that time, about 20 percent was parasitized or diseased. The first nymphs were observed on alfalfa in the southern one-half of the State in late April. By late June, populations in alfalfa increased and averages of 10 per sweep were common. Variable aphid populations persisted in alfalfa until killing frosts. Populations were present on alfalfa in ILLINOIS by mid-March 1976 at levels of 150-400 per sweep. By July 1, counts had increased to 200-400 per sweep in occasional fields. Populations were present through the growing season but failed to cause significant damage.

ALFALFA BLOTCH LEAFMINER (Agromyza frontella) adults became active in late April 1976 and went through 3 generations in central PENNSYLVANIA. In these regions, the second generation in July was the only one to damage alfalfa crops with up to 50 percent of the leaves containing mines and 15 adults per sweep. Pinholes and egg punctures were easily found in NEW YORK in late May 1976 on forage crops. By mid-June, heavy reports of activity were reported in

central, northern, and eastern New York. Alfalfa blotch leafminer was widespread and heavy in Oneida and Otsego Counties by late July. Populations and damage in MAINE in 1976 were lighter than in the past 2 years. There were a few cases where 20 percent of alfalfa leaves was infested. Good haying conditions allowed alfalfa to be cut early or on schedule.

BROWN WHEAT MITE (*Petrobia latens*), up to 300 per sweep, caused moderate to heavy damage to hay alfalfa in scattered areas of some fields in Churchill County, NEVADA, in late April and early May 1976. Irrigation provided effective control in most instances but about 300 acres needed chemical controls.

SOYBEANS

Highlights

SOYBEAN CYST NEMATODE extended its distribution in Illinois and Tennessee. FALL ARMYWORM damaged soybeans in Oklahoma and Arkansas. MEXICAN BEAN BEETLE was an important pest in northeast Alabama. SEEDCORN MAGGOT increased in Iowa, some replanting was needed. About \$3.5 million loss was caused by TWOSPOTTED SPIDER MITE in Illinois. A rare WIREWORM occurrence resulted in some replanting in North Carolina.

DISEASES

SOYBEAN CYST NEMATODE (*Heterodera glycines*) infestations were found in Crawford and Vermilion Counties, ILLINOIS, in late July 1976, for new county records. The Vermilion County infestation is presently the farthest north in the State. Infested soybean fields were noted in Davidson County, TENNESSEE, for a new county record in 1976. A previously unreported new county record was established when infestations were taken on soybeans at Hartsville, Trousdale County, September 21, 1976, by S.D. Gregory. Determination was made by R.E. Harrison. By mid-September, heavy populations were observed in many fields of the western area with 50-60 percent of the plants showing damage in some fields.

INSECTS

FALL ARMYWORM (*Spodoptera frugiperda*) damaged soybeans in the northeast, east-central, and southeast counties of OKLAHOMA from mid-July to early September 1976. Defoliation ranged 10-15 percent in some fields. Many of the heavier infestations were caused by larvae migrating from nearby alfalfa fields. This species was the main pest of soybeans in ARKANSAS in 1976 due to heavy populations overall and CORN EARWORM (*Heliothis zea*), generally the main pest of soybeans, being light for the fourth consecutive year. Infestations in 1976 were mainly along field borders adjacent to more favorable hosts. Fall armyworm and YELLOWSTRIPED ARMYWORM (*S. ornithogalli*) infested 3,243 acres of soybeans in TENNESSEE: 3,076 acres were treated.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) infestations caused up to 40 percent defoliation in soybean fields in southeast ARKANSAS in late September 1976. Due to the lateness of the infestations and maturity of the crops, no treatments were applied. This species is generally of minor importance in the State and sporadic infestations occur only in late season. This species was the main pest of soybeans in FLORIDA and was somewhat heavier in 1976 than in 1975.

Overwintered MEXICAN BEAN BEETLE (*Epilachna varivestis*) entered soybean fields in Calhoun, Madison, Cherokee, Jackson, Marshall, and other counties of ALABAMA, as early as June 1976 and became an important pest in many fields in the northeast area. Isolated soybean fields in SOUTH CAROLINA in 1976 were infested

heavily enough to need controls. By August 13, 1976, the second generation of beetles was laying eggs on soybeans in Richmond, Essex, King and Queen, and Hanover Counties in VIRGINIA. By August 27, Westmoreland County (597 acres) infestations averaged 11.8 beetles per 30 row feet with 6.4 percent defoliation. By September 3, defoliation in Northumberland County was 24.5 percent. Damage in Isle of Wight, Surry, and Middlesex Counties was lighter than usual. By September 10, fields in Lancaster County showed an average of 26 beetles per 30 row feet with 7.8 percent defoliation. An estimated 8,000 acres were treated in Virginia Beach. By September 17, the number of Mexican bean beetles had decreased due to extensive treating for CORN EARWORM (*Heliothis zea*). None of the 51 fields sampled in the Northern Neck of Virginia needed treatment the week ending October 1.

Early Mexican bean beetle populations on soybeans in MARYLAND were very light due to cool spring temperatures in 1976 and due to decreases in overwintering beetles caused by *Pediobius foveolatus* (a eulophid wasp). Dry weather in some areas in June and July caused further decreases in population levels, but by late season populations were near normal levels statewide. Much of the crop was then mature, limiting the statewide yield loss to approximately 2 percent, with 60,000 of 285,000 acres receiving one insecticide treatment. A substantial portion of this figure, however, was for scheduled preventive sprays. Populations were generally light in most areas of DELAWARE in 1976. The economic threshold was exceeded in one area of Kent and southern New Castle Counties during mid-September.

SEEDCORN MAGGOT (*Hylemya platura*) infestations in IOWA were first reported damaging soybeans in Union, Scott, and Keokuk Counties during the week ending May 28, 1976. Damage increased statewide during the first week of June. Some replanting of soybeans was needed. Damage continued through the second week of June in Cerro Gordo, Fayette, Jasper, and Marshall Counties. Damage to soybeans by seedcorn maggots increased from 1975. It was considered a major pest.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) damaged soybeans, mainly at the edges of the fields, in some dry areas of ILLINOIS June through August 1976. Infestations caused yellowing, stunting, and leaf drop in severe cases. The estimated dollar loss was approximately \$3.5 million from feeding damage alone. Benefits from treatment of 125,000 acres amounted to about \$6.5 million. Heavy populations were apparent in some soybean fields and garden vegetables in WISCONSIN by August 20, 1976. Populations were heaviest in soybean fields in the Central Sands. Up to 800 per leaflet were noted in some fields in the central and southern counties. Damage was compounded by the drought; severe leaf drop occurred in unirrigated portions of fields in the Central Sands.

WIREWORMS (*Conoderus* sp.) caused severe damage to germinating soybeans June 16, 1976, in Beaufort County, NORTH CAROLINA. This very rare occurrence resulted in replanting of about 5 acres.

PEANUTS

Highlights

LESSER CORNSTALK BORER was economic only in 15-20 percent of the peanut acreage in ALABAMA, the main insect on peanuts in FLORIDA, and a major economic problem in parts of South Carolina. SOUTHERN CORN ROOTWORM was spotty and slightly heavier than in 1975 in Virginia. TOBACCO THRIPS was heavier than in several years in Virginia. TWOSPOTTED SPIDER MITE caused much economic loss to peanuts in south-central Virginia.

INSECTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were reported in peanuts from early July to early October 1976 in OKLAHOMA. Except for a few isolated spots, populations were light until early September. The first adult and larvae were reported June 6, 1976, in Dale County, ALABAMA. Developing populations became economic in only 15-20 percent of the peanut acreage in August. Control efforts were applied on 25-40 percent of the 210,000 acres in 9 counties for E. lignosellus, GRANULATE CUTWORM (Feltia subterranea), CORN EARWORM (Heliothis zea), and VELVETBEAN CATERPILLAR (Anticarsia gemmatilis). E. lignosellus was the main insect pest of peanuts in FLORIDA in 1976, causing \$676,500 damage, about two-fifths of all insect damage. Infestations were a major economic problem in as many as 25 percent of the peanut fields in SOUTH CAROLINA during the dry weather of July and August. Recommended controls were effective when used.

FALL ARMYWORM (Spodoptera frugiperda) was the second most important pest of peanuts in FLORIDA in 1976, causing about \$440,000 in losses.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) infestations in peanuts in VIRGINIA were spotty and slightly heavier in 1976 than in 1975, but damage was not excessive. In 8 untreated checks, 20.9 percent of the pods were damaged. Damage ranged up to 43 percent in some untreated plots.

Unspecified THRIPS (Frankliniella spp.) were heavy, 10-60 per peanut plant, in some areas of OKLAHOMA in June 1976; some leaf curling was noted. The usual precautionary applications of preplant systemic insecticides were applied to 55 percent of the total peanut acreage for TOBACCO THRIPS (Frankliniella fusca) and other thrips in ALABAMA. Much of the remaining acreage received foliar applications as an aid in control efforts. Tobacco thrips on peanuts in VIRGINIA was heavier in 1976 than in several years. Systematic insecticides failed to give good control probably due to dry weather.

SPIDER MITES (Tetranychus spp.) infestations were moderate to heavy in peanuts in Caddo and Washita Counties, OKLAHOMA, from late August to early October 1976. TWOSPOTTED SPIDER MITE (Tetranychus urticae) populations on peanuts in south-eastern VIRGINIA during 1976 were widespread, severe, and caused much economic loss. On 4 untreated plots, mites averaged 371.6 per 10 leaves.

COTTON

Highlights

Heavy BOLL WEEVIL infestations were noted in Texas and Oklahoma from June until fall. Treatments in Arkansas were the lightest in 25+ years. Counts in Alabama were the lightest in 10 years. Control costs in North Carolina were about half of that in 1975. BOLLWORMS were generally light to moderate in California, light in Texas, and lighter than normal in Arkansas. Bollworm was a major pest in Tennessee in August and September. Control costs in North Carolina increased about \$3 million. Two to three treatments were required for THRIPS in Arkansas and Mississippi.

INSECTS

BOLL WEEVIL (*Anthonomus grandis*) adults in trap collections were light in February and March 1976 in the lower Rio Grande Valley of TEXAS. Infestations were 5 per 100 row feet in one cotton field near Weslaco, Hidalgo County, March 29. Populations remained light in the gulf coast and lower Valley areas until about May 7 when trap catches and field counts increased sharply in these areas, the Blacklands, and the south-central area. Weevils totaled 214 in one pheromone trap in Knox County May 11. Up to 80 percent punctured squares occurred by June 4 in the lower Rio Grande Valley, but the north-central and Rolling Plains reported several trap catches of 100+ weevils per week with one in Delta County catching 800. On July 2, damage had decreased to a maximum of 50 percent punctured squares in the lower Rio Grande Valley. Egg laying had started in the south-central area and pheromone traps were still producing in the Rolling Plains. Light populations were trapped in July and later in the season in the St. Lawrence area. Punctured squares ranged 0-50 percent in all infested areas in early July, but increased to 100 percent in the lower Valley and 70 percent in the Blacklands 14 days later. Heavy but variable pressure continued until harvest or frost in all areas, with populations reaching 8,000 per acre in many fields in the Rolling Plains on September 3.

Boll weevil adults were taken in pheromone traps in Jackson and Greer Counties, OKLAHOMA, as early as May 10, 1976. Trap catches averaging 175 per week were taken in some areas in the southwest and west-central counties during early June. Punctured cotton squares were first found in early July and heavy infestations were reported in some isolated spots during July. In August and early September, heavy infestations (35-100 percent) were common in untreated cotton in all southwest and west-central counties. Heavy adult populations were still present into early October indicating a heavy overwintering population. Infestations in cotton were lighter than normal in ARKANSAS during 1976 and treatments for control were the lightest in more than 25 years. Pheromone trapping was widespread. The peak catch was 1.2 weevils per trap the week ending June 25. Weevils were taken as late as June 28 in Clay County. Populations for the 1976 cotton season in MISSISSIPPI were relatively light compared with the 1975 season. Emerging weevils collected from April 9 to June 1, averaged 19 per sex-lure trap in Oktibbeha and Clay Counties. The first damaged squares were reported June 25 in Monroe County. During the week ending July 29, punctured squares ranged 1-10 percent in Franklin, Monroe, Montgomery, Yalobusha, Holmes, Lowndes, Carroll, Adams, Alcorn, and Noxubee Counties. During the usual peak period for weevils in August, punctured squares ranged 1-20 percent. "Hotspots" had 55 percent punctured squares but were limited. Controls were successful.

Boll weevil adults were active in ALABAMA throughout 1976 and were trapped in Barbour County from January through March. The first weevils of the season collected on cotton occurred the second week of May in Macon County. The first collection in the northern area was in Colbert County during the second week of May in sex-lure traps. The first "hatchout" of weevils in June in the southern area and in early July in the northern area was light and late. Succeeding generations were light and easily controlled. Weevils throughout the State were much lighter than in 10 years and controls were more successful. Overwintered adults in several west TENNESSEE counties were well below populations in 1975 for all, or part, of April, May, and June. Due to late-maturing cotton throughout the State, the first square counts were made the week ending June 23 when punctured squares ranged 0-9 percent in the central area and 4-65 percent in the west area. These counts were not considered representative due to the scarcity of squares. First-generation "hatchout" was observed during the week ending August 13, and square counts ranged 0-20 (averaged 10-12) percent. Second generation weevils emerged during the week ending August 27, and punctured

squares ranged 4-46 percent. Third generation weevils emerged during the week ending September 3, and punctured squares ranged up to 94 percent. Second and third generation populations overlapped during this period. Emergence was 14-21 days later in 1976 than in 1975 on cotton throughout SOUTH CAROLINA. Populations appeared to be much lighter. Populations remained light throughout the season and good control was obtained. Damage was light in NORTH CAROLINA during 1976 with some "hotspots" in Scotland, Northampton, and Halifax Counties. Damaged cotton squares averaged below 10 percent with some fields nearing 20 percent during early August. Estimated losses plus cost of control continued to decrease although acreage increased 13,000 acres from 1975. Estimated loss plus control cost on 68,000 acres of harvested cotton in 1976 was \$1.6 million compared with \$3 million on 55,000 acres in 1975.

BOLLWORM (Heliothis zea) was generally light to moderate on cotton in Imperial and Riverside Counties, CALIFORNIA, in 1976. TOBACCO BUDWORM (H. virescens) increased in significance in the Imperial Valley with heavy damage; long term impact is unknown. In TEXAS, H. zea and H. virescens peaked early, the week of April 9, 1976, in the lower Río Grande Valley of Texas with 203 larvae per 100 plants and isolated fields had up to 90 percent terminal loss. Populations remained widespread but light throughout the State the remainder of the year. Less than 5 percent damage occurred through the remainder of the season except in unusual fields. A peak in September in the High Plains caused some concern but little damage. H. zea eggs were first found in cotton in southwestern OKLAHOMA the last of June 1976. Infestations in the southwest and west-central counties were mostly light to moderate all season, seldom averaging more than 15 eggs or larvae per 100 terminals. Very few H. virescens infestations were reported, but from late July to early September some infested fields were found in Caddo and Grady Counties. H. zea and H. virescens infestations were lighter than normal in ARKANSAS in 1976. Treatments for control were later than normal and not needed in many fields. H. virescens continued a major problem, mainly in the southern area, largely due to difficulty in control. H. virescens constituted only a small percent of the Heliothis spp. taken in traps. H. virescens larvae made up a large percentage of the larvae identified in the fields in the southern area in September and October, due to insecticide selection caused by resistance.

Heliothis spp. infestations throughout MISSISSIPPI were less of a problem in 1976 than in 1975. First generation eggs were light on June 15 with first generation larvae controlled by beneficial insects. Some problems were noted during the last week of July in the south Delta counties, but controls were effective. Heavy egg laying occurred statewide during mid and late August. Larvae were adequately controlled. H. virescens and H. zea became pests of cotton in ALABAMA throughout the 1976 season following an earlier increase of 2+ generations on clovers, vetch, and corn. Larvae were less damaging than in the past 10 years. H. zea was below control levels in TENNESSEE until mid-August 1976 when all stages were found and populations were above control levels in many cotton fields. By the end of August this species had become the main pest of cotton in many fields. Egg and larval populations continued above control levels with damage apparent in many fields into late September. Light to moderate numbers of H. zea and H. virescens eggs and larvae were noted throughout the middle of SOUTH CAROLINA from the last week of July 1976 to the first week in August. Similar infestations began in the upper counties of the State 10-14 days later. These infestations were about 21-28 days later than in 1975 and field populations were much lighter. The majority of growers obtained good control of this pest complex. The proportion of tobacco budworm in the bollworm complex has increased from 15 percent and 21 percent in 1969 and 1970 to 79 percent, 75 percent, and 41 percent in 1974, 1975, and 1976, respectively.

H. zea and H. virescens egg laying was very heavy in the northern Coastal Plain cotton fields of NORTH CAROLINA in 1976. Eggs were noted at 100 per 100 terminals in Edgecombe, Halifax, and Northampton Counties August 13, 1976. The threshold (5 percent damaged squares) was noted in 20 percent of the fields in Edgecombe and Northampton Counties during late August. "Hotspots" of 20 percent infested bolls were reported from about 5 percent of the fields in Northampton County. Controls were adequate. The estimated loss plus cost of control on cotton totaled \$4.6 million on 68,000 acres in 1976 compared with \$1.2 million on 55,000 acres during 1975.

COTTON APHID (Aphis gossypii) infestations on cotton in ARKANSAS were more common in 1976 than for the past several years. Increased infestations and less effective control than in the past indicate possible insecticide resistance.

BANDEDWING WHITEFLY (Trialeurodes abutilonea) infestations continued to be heavier and more widespread on cotton in ARKANSAS during 1976 as in past years. Control is seldom satisfactory and the somewhat effective materials are limited in number.

LYGUS BUGS (Lygus spp.) infestations were widespread in cotton throughout CALIFORNIA in 1976. Light to heavy infestations occurred, but generally were below normal in Palo Verde Valley and at Blythe, Riverside County.

TARNISHED PLANT BUG (Lygus lineolaris) infestations averaged 15 percent in squaring cotton in Sunflower and Monroe Counties, MISSISSIPPI, in 1976. During the last week of July, infestations increased to 50 percent in many areas where scheduled insecticide applications were absent. L. lineolaris and COTTON FLEAHOPPER (Pseudatomoscelis seriatus) were above average, especially in the Delta area.

Infestations by unspecified THRIPS species in ARKANSAS were heavier than normal in 1976 partly due to increased wheat acreage in the cotton areas. Thrips treatments were the heaviest and most widespread of all time. Treatments were applied up to 3 times in some fields. Increased treatments resulted from several factors, such as greater thrips numbers, cool weather, and herbicide damage. Frankliniella spp. and Thrips spp. were an exceptional problem during the 1976 cotton season in MISSISSIPPI compared with 1975. An average of two treatments was applied for thrips on cotton statewide. The problem was attributed to a cool, wet spring which delayed growth of seedling cotton. Populations ranged 0.2-5.0 per plant in Delta and Hill section cotton during early June.

LIGHT TRAP COLLECTIONS

CALIFORNIA - Bellota, 2/28-3/4, BL - BEET ARMYWORM (Spodoptera exigua) 1, VARIEGATED CUTWORM (Peridroma saucia) 2. Stockton, 2/28-3/4, BL - Variegated cutworm 2. FLORIDA - Gainesville, 3/3-9, BL - ARMYWORM (Pseudaletia unipuncta) 2, BLACK CUTWORM (Agrotis ipsilon) 1, GRANULATE CUTWORM (Feltia subterranea) 11.

Distribution and Identification of Blue Alfalfa Aphid
Acyrtosiphon kondoi Shinji (Homoptera: Aphididae)

Tokuwo Kono^{1/}

Since its discovery in California in May 1974, blue alfalfa aphid, Acyrtosiphon kondoi Shinji, has been found to be generally distributed in California. It is now known to occur in the following counties: Fresno, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Modoc, Monterey, Riverside, Sacramento, San Bernardino, San Joaquin, Santa Barbara, Siskiyou, Tulare, Ventura, Yolo, and Yuba. Blue alfalfa aphid is known, also, to be established in Arizona, Kansas, Nevada, New Mexico, and Utah.

A very useful character for field identification is body coloration, which is bluish green for blue alfalfa aphid and yellowish green or light green for pea aphid, Acyrtosiphon pisum (Harris). Other diagnostic characters for field identification are the coloration of the third antennal segment of nymphs and adults, and the coloration of the thoracic area of the winged forms. The third antennal segment of pea aphid shows a narrow dark band at the tip, whereas that of blue alfalfa aphid is uniformly brown. The color of the thoracic area of the winged form is dark blackish brown for blue alfalfa aphid and light brown for pea aphid.

Microscopic examination of the head shows that the head of pea aphid is larger and the hairs on the head are shorter than that of blue alfalfa aphid (Fig. 1-4).

Comparison of parts of the body of the winged forms (Fig. 5-12) and the wingless forms (Fig. 13-20) of pea aphid and blue alfalfa aphid shows that, in general, the body parts of pea aphid are longer than those of blue alfalfa aphid. The cauda of both winged and wingless forms of pea aphid have more hairs and have shorter hairs at the tip than that of blue alfalfa aphid. Finally, the base of antennal segment 6 is over twice as long as the last rostral segment for pea aphid and only a little longer for blue alfalfa aphid.

These are only some of the characters that can be used, most of the time, for the identification of blue alfalfa aphid. There are many exceptions, for the genus Acyrtosiphon is composed of many closely related, highly variable species.

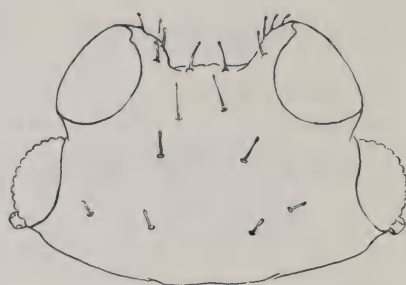
^{1/} Division of Plant Industry, Laboratory Services-Entomology, California Department of Food and Agriculture, Sacramento, California 95814

Reference

Eastop, V.F. 1971. Key for the identification of Acyrtosiphon (Hemiptera: Aphididae). Bull. British Mus. (Nat. Hist.) Entomol. 26(1):1-115



1



2



3



4

Fig. 1-4. Head of adults. 1, pea aphid, wingless; 2, blue alfalfa aphid, wingless; 3, pea aphid, winged; 4, blue alfalfa aphid, winged.

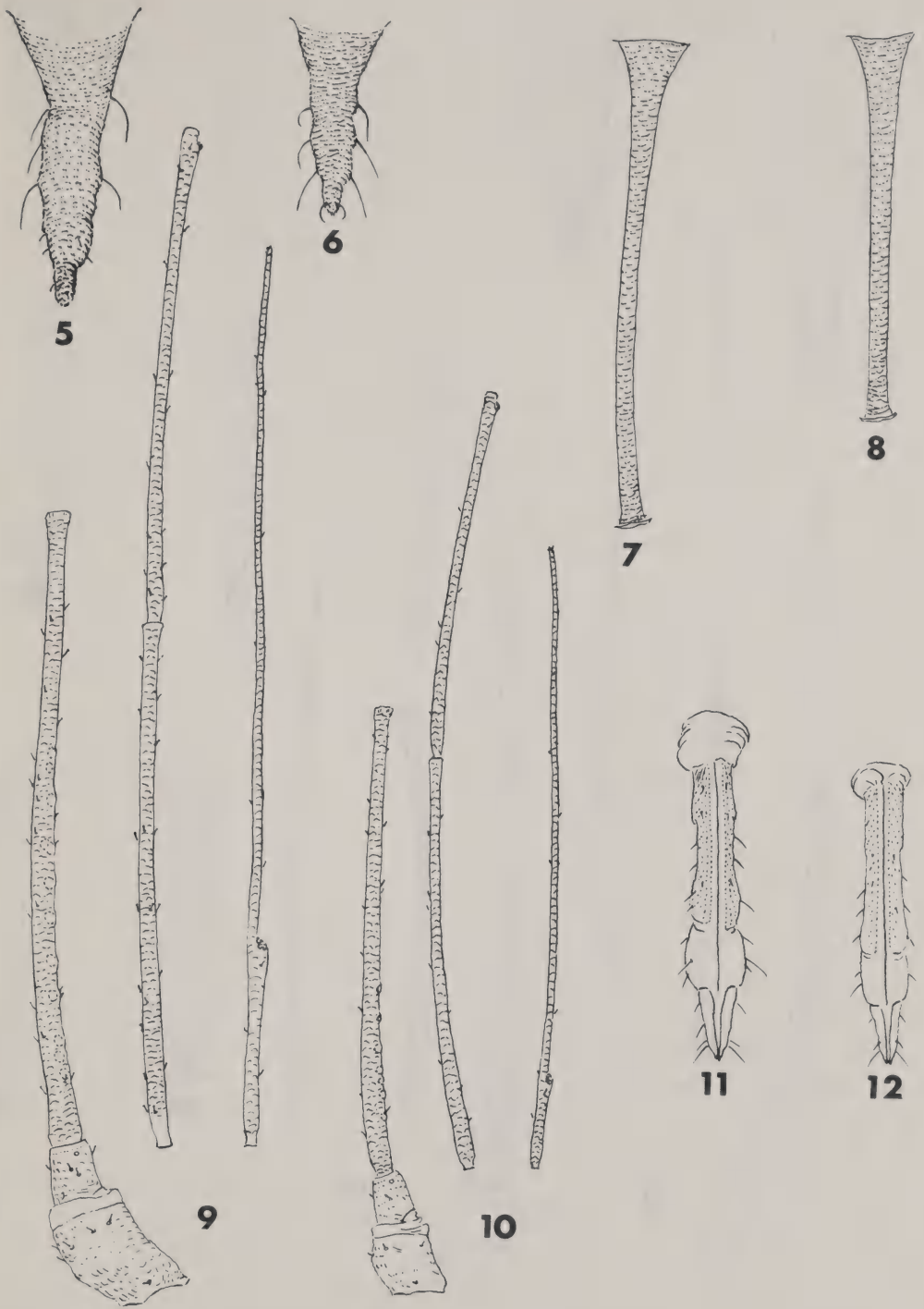


Fig. 5-12. Body parts of winged adults (left, pea aphid; right, blue alfalfa aphid). 5-6, cauda; 7-8, cornicle; 9-10, antenna; 11-12, rostrum.

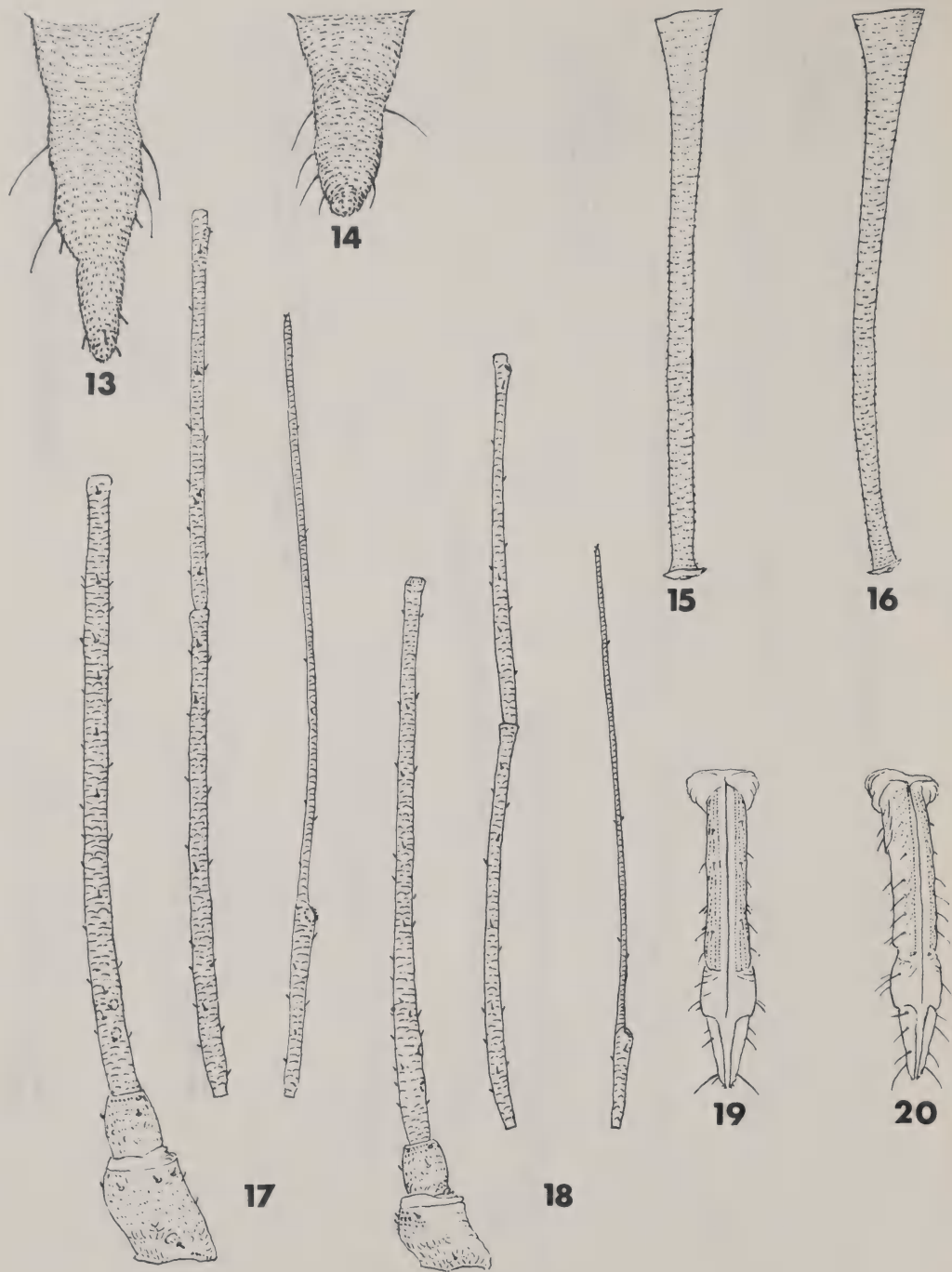


Fig. 13-20. Body parts of wingless adults (left, pea aphid; right, blue alfalfa aphid). 13-14, cauda; 15-16, cornicle; 17-18, antenna; 19-20, rostrum.

U.S. Dep. Agric., Coop. Plant Pest Rep., 2(11):153-156, 1977

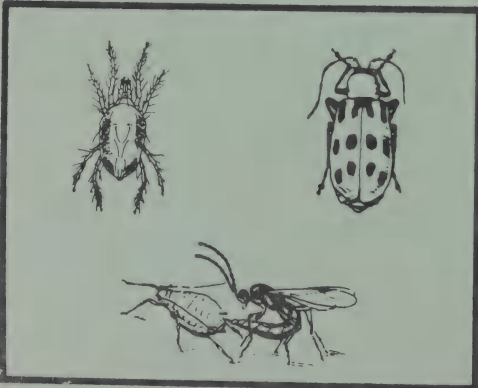
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This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

Potential for severe CORN ROOTWORM problem on second-year corn in Wisconsin. (p. 3).

A WEEVIL most severe on avocado in Florida in 30 years. (p. 5).

Detection

● A DELPHACID PLANTHOPPER new to the United States was collected in Hawaii. (p. 11).

New State records include a SCOLYTID BEETLE in New Mexico (p. 7), a BRACONID WASP and a NYMPHALID BUTTERFLY in Hawaii (p. 11), and an ICHNEUMONID WASP in Connecticut (p. 25) and Vermont (p. 26).

For new county and island records, see pages 13-14.

New host records were reported for 3 SCALES and 2 MEALYBUGS in Alabama, and a WHITEFLY in Florida (p. 6), and in Hawaii (p. 12).

Special Reports

● Pest Detection in the United States - 1976. There were 16 new United States records and 59 new State records. (p. 17-23).

Surveys for Alfalfa Weevil Parasites during 1976. (p. 24-26).

First Report of Comperia merceti (Compere) in Wisconsin (Hymenoptera: Encyrtidae). (p. 27).

State Survey Coordinators. (p. 28-30).

Cooperative Survey Entomologists. (p. 31-34).

Reports in this issue are for the weeks ending December 11, 1976, through January 21, 1977, unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - TEXAS - Up to 0.2 per row foot of small grains in Wichita County January 13, 1977. (TX Coop. Rep.). OKLAHOMA - First larva of season; second instar on wheat in Payne County December 29, 1976. (OK Coop. Surv.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Up to 28 per 30 sweeps along west side in Imperial Valley week ending December 31, 1976. Treatment anticipated for late January with potential acreage of 23,000. Some natural reduction of adults with increase in other areas. Counts heavier than normal in San Joaquin Valley in 1976, but due to vegetation condition and warm weather, no population concentration occurred. Extra summer generation this past fall still found as nymphs and adults. Host plants beginning to show stress due to lack of moisture and to frosts. Treatment underway at Coalinga, Fresno County, week ending January 21. Total of 1,883 acres treated. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot of small grains by date and county: December 13, 1976, -- Archer, Baylor, Fisher, Knox, Wichita, and Wilbarger ranged 0-5; December 14-16 -- Parmer one; December 20 -- Archer, Baylor, Hardeman, Jones, Kent, and Wichita fewer than 5, Fisher up to 70 and mean of 25 in separate counts, and Wilbarger, averaged 15; January 3, 1977, -- Archer, Kent, Motley, Wichita, and Wilbarger up to 15, Fisher up to 250 in spots and averaged 10-140 in separate counts. Up to 5 per row foot of small grains in Archer, Cottle, Foard, Hardeman, Knox, and Motley Counties week ending December 17. Counts per row foot of small grains by county January 11: Archer, Baylor, Dickens, Fisher, Hardeman, and Wichita ranged 0-15; and Wilbarger, maximum of 125. (TX Coop. Rep.). OKLAHOMA - Greenbug counts per row foot by county week ending December 17, 1976. Southwest up to 5 on wheat, Payne averaged one, and Washita and Beckham ranged 0-7. Ranged 0-36 per row foot of wheat in Tillman, Kiowa, Jackson, Harmon, and Greer Counties week ending December 31. Highest single field average of 16 per row foot and overall average of 8 per row foot. Ranged 0-6 per row foot in fields in Washita and Beckham Counties. Ranged 0-5 (averaged 1.3) per row foot of wheat in Payne County week ending January 7. Ranged 0-2 per row foot of grazed wheat in Washita County week ending January 21. Up to 26 per row foot in one ungrazed field. (OK Coop. Surv.).

CORN, SORGHUM, SUGARCANE

INSECTS

EUROPEAN CORN BORER (Ostrinia nubilalis) - INDIANA - Of 238 live larvae dissected, 19 (8 percent) contained immature hymenopterous parasites (probably Eriborus terebrans) and one contained a dipterous parasite. The 8 percent figure is regarded as minimal due to long storage between collection and dissection resulting in mortality biased more toward the diseased and parasitized than toward the healthy. (Meyer).

CORN ROOTWORMS (Diabrotica spp.) - MICHIGAN - Adults surveyed in 126 corn fields in Sanilac County August of 1976. Adults 130 or more per 160 plants in 23 percent of fields that should be rotated or treated if planted to corn in 1977. This percentage probably good average for State. Fields with fewer than 130 adults per 160 plants averaged 27 adults per 160 plants. (Ruppel). WISCONSIN - Fall egg survey in 1976 showed 43 percent increase over number found in 1975. State average of 14.81 eggs per pint of soil, heaviest in 5 years; potential for severe rootworm problems in 1977 in fields of second-year corn. Control threshold at 5 or more eggs per pint of soil. Egg averages per pint of soil by district: Northwest 1.53, north-central 2.60, northeast 2.68, west-central 17.06, central 10.69, east-central 20.97, southwest 12.72, south-central 20.63, and southeast 13.42. (WI Pest Surv.).

SMALL GRAINS

INSECTS

HESSIAN FLY (Mayetiola destructor) - OKLAHOMA - Infested 17 of 22 fields of wheat in Garvin, Murray, and Stephens Counties week ending December 17, 1976. Infested average of 40 percent of plants in spots near Pauls Valley, Garvin County; some plants dead or dying. Larvae still in some fields and may not overwinter. Infested 11 of 12 early planted fields in Payne and Logan Counties; one field in Payne County heavily infested with some plants already dead. (OK Coop. Surv.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Scattered on wheat in southwestern counties week ending December 24, 1976. Heaviest 25-30 per row foot in Harmon County. Ranged 0-15 (averaged 2.4) per row foot of wheat in Payne County week ending January 7. (OK Coop. Surv.).

WINTER GRAIN MITE (Penthaleus major) - CALIFORNIA - Adults and nymphs infested oats at Herald, Sacramento County, week ending December 17, 1976. (CA Pest Rep.). TEXAS - Counts in small grain fields by date and county: December 20, 1976, -- Knox increased and Wichita up to 54 per row foot; and January 3, 1977, -- Hardeman present. (TX Coop. Rep.). OKLAHOMA - Averaged 2 per row foot of wheat in Payne County week ending December 17, 1976. Averages up to 4 per row foot of wheat in Payne County week ending January 7. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - First newly laid eggs of season 5-10 per square foot in alfalfa samples collected in Grady County December 15, 1976. Eggs 5-10 per square foot of alfalfa in Payne County December 17. Eggs 0-20 per square foot of alfalfa in Grady County January 19. (OK Coop. Surv.). INDIANA - Total of 26 alfalfa fields sampled in November and December 1976. Mean eggs per quarter foot of alfalfa by district: Northwest 11.6, west-central 3.7, central 11.2, east-central 2.3, southwest 3.5,

south-central 9.5, and southeast 6.7. Light egg counts may be due to light adult counts, unusually low fall temperatures, or unknown causes. Spring damage due to overwintered eggs in southern third of State should not be as heavy in 1977 as in 1976. (Meyer).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Increasing on alfalfa in Imperial Valley, Imperial County, week ending January 21. (CA Pest Rep.).

DECIDUOUS FRUITS AND NUTS

INSECTS

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - Adults heavy on peach at Live Oak, Sutter County, week ending January 7. Controls using winter oils questionable due to drought conditions. Some growers used alternatives. (CA Pest Rep.).

AN ARMORED SCALE (Lecanodiaspis prosopidis) - ALABAMA - Collected on Diospyros virginiana (common persimmon) at Lanett, Chambers County, October 2, 1976. Collected and determined by M.L. Williams. Collected on Diospyros virginiana (common persimmon) at Montgomery, Montgomery County, by C.H. Ray, October 28, 1976. Determined by M. L. Williams. These are new county records. (McQueen).

OTHER TROP. & SUBTROP. FRUITS

INSECTS

A WEEVIL (Heilipus apiatus (= squamosa)) - FLORIDA - Larvae heavy January 17; damaged plantings of young Persea americana (avocado) in Dade and Collier Counties. Most severe infestation of this weevil since the late 1940's. (FL Coop. Surv.).

ORNAMENTALS

INSECTS

A SOFT SCALE (Ceroplastes floridensis) - ALABAMA - Collected on Burford holly at Enterprise, Coffee County, by T.C. Casaday, August 26, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected (host unknown) at Montgomery, Montgomery County, by C.H. Ray, October 28, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

HEMISPHERICAL SCALE (Saissetia coffeae) - ALABAMA - Collected on Viburnum sp. at Semmes, Mobile County, by L.W. Lockhart and Goff, August 13, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - ALABAMA - Collected on Solidago sp. (goldenrod) in greenhouse at Auburn, Lee County, by C.H. Ray, September 27, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

AN ARMORED SCALE (Fiorinia theae) - ALABAMA - Collected on Ilex crenata (Japanese holly) at Geneva, Geneva County, by D. Carpenter, August 27, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ARMORED SCALE (Rhizaspidiotus dearnessi) - ALABAMA - Collected on Solidago sp. (goldenrod) at Eufaula, Barbour County, by B.J. Muse, September 9, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

FERN SCALE (Pinnaspis aspidistrae) - ALABAMA - Collected on Mondo sp. (lilyturf) at Auburn, Lee County, by J. Adams, September 10, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

CITRUS MEALYBUG (Planococcus citri) - ALABAMA - Collected on Aloe vera (true aloe) at Auburn, Lee County, by C.H. Ray, October 11, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

LONGTAILED MEALYBUG (Pseudococcus longispinus) - ALABAMA - Collected on Solidago sp. (goldenrod) in greenhouse at Auburn, Lee County, by C.H. Ray, September 27, 1976. Determined by M.L. Williams. This is a new host record for State. (McQueen).

A WHITEFLY (Aleurodicus dispersus) - FLORIDA - Larvae and pupae light on leaves of Laguncularia racemosa (white-mangrove) at Cape Florida, Key Biscayne, Leon County, December 16, 1976. Collected by F.G. Barker. Determined by A.B. Hamon. This is a new host record for State. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Damage heavy in 200-acre mature pine stand near Lanett, Chambers County, week ending December 16, 1976. About 25 percent of trees faded, red, or dead. Similar groups of affected pines in much of eastern edge of Lee and Chambers Counties along Chattahoochee River. Little leaf disease in the mostly shortleaf pines on the several 1,000 acres appears to be forerunner of problem as beetles move to these weaker trees. (Oakland, Barker, et al.). MISSISSIPPI - New infestation found on Pinus taeda (loblolly pine) in Tombigbee National Forest in Winston County week ending January 14. About 10 trees infested. Damage extensive. (Gammill).

A MEALYBUG (Dysmicoccus obesus) - ALABAMA - Collected on Pinus taeda (loblolly pine) at Tuskegee, Macon County, by C.H. Ray, November 2, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ERIOPHYID MITE (Platyphytoptus sabinianae) - CALIFORNIA - Heavy on Pinus sp.; infested needles, tips, and branches at Vacaville, Solano County, week ending December 24, 1976. Discolored needles on many pines in area. (CA Pest Rep.).

A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO - Collected from ornamental ash at Clovis, Curry County, by J. Durkin, July 15, 1975. Determined by S.L. Wood. This is a new State record. (NM Coop. Rep.).

A SCOLYTID BEETLE (Leperisinus aculeatus) - WISCONSIN - Collected on Marshall seedless green ash at La Crosse, La Crosse County, by M.S. Conrad, August 5, 1976. Determined by D.M. Anderson. This is a new county record. (WI Pest Surv.).

AN ARMORED SCALE (Diaspidiotus liquidambaris) - ALABAMA - Collected on Liquidambar styraciflua (American sweetgum) at Lanett, Chambers County, October 2, 1976. Collected and determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected on Callicarpa americana (French mulberry) at Lapine, Crenshaw County, by T. Seibels, September 22, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Very heavy in backs of cattle at Apache, Caddo County, week ending December 17, 1976. Grubs 0-56 (averaged 12.3) per head in herd of 108 beef cows and 0-14 (averaged 1.9) per head in second herd of 85 in Payne County. Averaged 6.3 per head on 76 untreated dairy cows in Payne County week ending January 14. Averaged 14.1 per head on 106 untreated pregnant beef cows, 5.8 per head on 60 untreated cows with fall calves, and 0.98 per head on 60 treated pregnant cows. Averaged 6.3 per head on 18 beef cows in Noble County. Few grubs dropped from backs to pupate. Continued heavy in cattle in Comanche County week ending January 21. (OK Coop. Surv.).

PIGEON FLY (Pseudolynchia canariensis) - CALIFORNIA - Found on pigeons at Stockton, San Joaquin County, week ending January 7, 1977. Infested almost all 100 pigeons. Collected by K. Brown and R. Greek, December 3, 1976. Determined by K. Brown. This is a new county record. (CA Pest Rep.).

HOUSEHOLDS AND STRUCTURES

INSECTS

AN AMBROSIA BEETLE (Xyleborus ferrugineus) - ALABAMA - Collected infesting wood in home at Geneva, Geneva County, by R.C. Reynolds, October 23, 1976. Determined by D.M. Anderson. This is a new county record. (Reynolds).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN ICHNEUMONID WASP (Bathyplectes anurus) - INDIANA - Following are new county records. Determinations based on parasitoid cocoons. Parasitized Hypera postica (alfalfa weevil) larvae reared on alfalfa and collected in these counties: Spencer at Mariah Hill

by R.W. Meyer on April 12, 1976, determined by H. Barlow; Dubois at Ferdinand by D.K. Morihara on April 20, determined by J. Stewart; Daviess at Plainville by R.W. Meyer on May 4, determined by P. Sutton. (Meyer).

AN ICHNEUMONID WASP (Bathyplectes curculionis) - INDIANA - New county records follow. Determinations based on parasitoid cocoons taken from Hypera postica (alfalfa weevil). Weevils collected by R.W. Meyer on dates given. (Meyer).

County	City	Date	Determiner
Randolph	Farmland	June 1973	R.W. Meyer
Gibson	near Mackey	Apr. 19, 1974	R.W. Meyer
Spencer	St. Meinrad	Apr. 20, 1974	R.W. Meyer
Ripley	Elrod	May 1, 1974	R.W. Meyer
Dubois	St. Henry	May 7, 1974	R.W. Meyer
Jennings	San Jacinto	May 9, 1974	R.W. Meyer
Union	Liberty	May 14, 1974	R.W. Meyer
Rush	Manila	May 15, 1974	R.W. Meyer
Shelby	Rays Crossing	May 15, 1974	R.W. Meyer
Grant	Point Isabel	May 3, 1976	J. Stewart
Fayette	Springersville	May 4, 1976	J. Stewart
Noble	Wawaka	May 19, 1976	H. Barlow
Clay	Prairie City	May 24, 1976	H. Barlow
Blackford	Hartford City	May 25, 1976	P. Sutton
Jay	Portland	May 25, 1976	P. Sutton

A BRACONID WASP (Microctonus aethiopoides) - OHIO - Reared from adult Hypera postica (alfalfa weevil) collected from alfalfa in 1976. Collected and determined by J.K. Flessel. Collections by county as follows: Morrow at Johnsville and Richland at Shelby on October 12, 1976; Ashland at Hayesville, Knox at Fredrickstown, and Mercer at Coldwater on October 29. All are new county records. (Lewis).

A BRACONID WASP (Opius dimidiatus) - FLORIDA - Mostly this species parasitized about 40 percent of active larvae of Liriomyza sativae (a leafminer fly) in celery at Zellwood, Orange County, January 6. (FL Coop. Surv.).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Collections from Tribulus terrestris (puncturevine) represent new county records. Adults and larvae collected 1975; larvae in 1976. (Bell).

County	Nearest City	Collector	Collection Date	Determiner
Stafford	St. John	K.O. Bell	Sept. 9, 1975	R.E. Warner
Harper	Harper	K.O. Bell	Sept. 10, 1975	R.E. Warner
Kingman	Cunningham	K.O. Bell	Sept. 10, 1975	K.O. Bell
Sumner	Mayfield	K.O. Bell	Sept. 10, 1975	K.O. Bell
Ellsworth	Black Wolf	K.O. Bell	Sept. 17, 1975	K.O. Bell
Stevens	Hugoton	M.L. Shuman	Sept. 19, 1975	K.O. Bell
Grant	Ulysses	M.L. Shuman	Sept. 22, 1975	K.O. Bell
Kiowa	Wellsford	G.A. Salsbury	Sept. 25, 1975	K.O. Bell
Gove	Gove	M.L. Shuman	Sept. 30, 1975	K.O. Bell
Lane	Dighton	M.L. Shuman	Sept. 30, 1975	K.O. Bell
Pawnee	Larned	E.F. Martinez	Aug. 27, 1976	E.F. Martinez

County	Nearest City	Collector	Collection Date	Determiner
Barton	Great Bend	E.F. Martinez	Aug. 27, 1976	E.F. Martinez
Pratt	Cullison	E.F. Martinez	Sept. 10, 1976	E.F. Martinez
Ness	Bazine	E.F. Martinez	Sept. 13, 1976	E.F. Martinez
Rush	Rush Center	E.F. Martinez	Sept. 13, 1976	E.F. Martinez
Trego	Trego Center	E.F. Martinez	Sept. 14, 1975	E.F. Martinez
Lincoln	Vesper	E.F. Martinez	Sept. 15, 1975	E.F. Martinez
Russell	Russell	E.F. Martinez	Sept. 15, 1975	E.F. Martinez
Edwards	Trousdale	E.F. Martinez	Sept. 17, 1975	E.F. Martinez
Ford	Spearville	E.F. Martinez	Sept. 17, 1975	E.F. Martinez

A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) - KANSAS - Collected from Tribulus terrestris (puncturevine) at St. John, Stafford County, by K.O. Bell, September 9, 1975. Determined by R.E. Warner. This is a new county record. (Bell).

DISEASES

SKELETONWEED RUST (Puccinia chondrillina) - CALIFORNIA - Pustules on Chondrilla juncea (rush skeletonweed) at all 5 sites in Placer County and site in El Dorado County. Plants at one site with stem pustules containing spores and mycelia. (CA Pest Rep.).

FEDERAL AND STATE PROGRAMS

INSECTS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Male flight decreased to average of 0.7 male per pheromone trap at Porterville, Tulare County, week ending December 17, 1976. Freezing temperatures sharply curtailed male activity. Male flight at Porterville, Tulare County, dropped to zero for first time this season week ending December 24. Traps will be removed after 2 weeks of negative trapping. Updating of commercial lemon, pomegranate, and quince maps in Tulare County continues. (CA Pest Rep.).

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Activities continue within intensive survey zone of San Jose, Santa Clara County, week ending December 24, 1976. Crews surveyed 99 percent of these blocks once, and 35 percent of these blocks twice. To date, 69 percent of properties inside this area surveyed. Survey crews inspected 55 blocks within secondary survey zone; 53 percent of these properties surveyed. All survey results for above areas continue negative. Larvae have hatched from 3 egg massess. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Adult male trapped December 9, 1976, at Los Angeles, Los Angeles County, week ending December 17, 1976. Represents treatment expansion of at least 9 square miles and trapping expansion of at least 30 square miles. Third treatment 80 percent completed at Inglewood, second treatment completed at La Cresenta and at Pico Rivera. Fruit collection covered over 2 square miles at Inglewood area. Total of 1,640 Steiner and 518 McPhail traps in fields with 46 flies trapped. Total trap area expanded to 417 square miles in Los Angeles County week ending December 24. Total treatment expanded to total of 116.5 square miles with one treatment completed in new area in central

Los Angeles. Fruit collection continues with no larval or pupal finds. Another male trapped 3+ miles from nearest earlier catch week ending December 31. All catches to date made in Los Angeles. Total treatment area covers 125.5 square miles week ending January 7. Status of treatment areas as follows week ending January 14: Hollywood second treatment completed; central Los Angeles second treatment completed; La Cresenta fourth treatment 30 percent completed; Santa Monica fourth treatment completed; Pico Rivera fourth treatment completed; and Inglewood fifth treatment 70 percent completed. Trapping covers 450 square miles in Los Angeles County with 1,913 Steiner and 601 McPhail traps. Treatment continues but with some slowdown due to recent rains week ending January 21. To date 285,153 bait treatment stations made for male annihilation. No new fly found. Traps in field increased to 1,916 Steiner and 617 McPhail traps. (CA Pest Rep.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Increasing north and east of Hondo, Medina County, January 11. New mounds in Bandera County. (TX Coop. Rep.). ALABAMA - About 8 to 18-inch high mounds in pasture in Lee County contained many winged and worker forms with 50-62 degree F. temperatures week ending December 24, 1976. Few winged forms in flight and some dropping into nearby lakes. Mounds at 500+ per acre. (McQueen).

SCREWWORM (Cochliomyia hominivorax) - Total of 1,074 cases reported from continental U.S. November 14 to December 11, 1976, as follows: Texas 1,051, New Mexico 9, Arizona 17, California 5. Total of 1,082 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 4,407 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 474,003,600 as follows: Texas 447,300,600; Arizona 20,358,000; California 6,345,000. Total of 179,498,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Adult crawlers on previously infested deciduous magnolia tree at San Jose, Santa Clara County, week ending January 14. No finds for last 2 seasons. Treatment will begin soon. (CA Coop. Rep.).

WEEDS

TANGLEHEAD GRASS (Heteropogon contortus) - CALIFORNIA - One plant found and mechanically removed week ending December 24, 1976, after absence of 2.5 years. This plant favored by unseasonably wet desert weather in 1976. Eradicative efforts will continue until infested area is free of pest for 3 years. (CA Pest Rep.).

HAWAII PEST REPORT

Detection - A DELPHACID PLANTHOPPER (Sardia pluto (Kirkaldy)) adults collected from light trap at Honolulu International Airport, Oahu, by J. Beardsley, September 21, 1976. Determined by J.P. Kramer. This is a new United States record. Known from Sri Lanka, eastern Australia, New Caledonia, Fiji, Samoa, Tahiti, Philippines, Taiwan, and western Caroline Islands. No information available on its host or biology. (Beardsley).

Adult of BRACONID WASP (Heterospilus baeticatus) first taken at large at Tantalus, Oahu, by L. Hirata, March 28, 1969. Between 1970 and 1976, six more specimens collected from Ewa, Manoa, and Pawaa, Oahu, including adult from Pahala (no island designation). Determined by P.M. Marsh. This is a new State record. This species occurs in Northeastern U.S. and is parasite of Xyletinus peltatus (an anobiid beetle). (Beardsley, Higa).

Two adults of a NYMPHALID BUTTERFLY (Agraulis vanillae vanillae) were collected independently by J.W. Beardsley and K. Arakaki at Manoa, Oahu, on January 14, 1977, near Passiflora foetida (pohapoha vines). Determined by J.W. Beardsley. This is a new State record. Survey on same day netted 7 more adults, 2 pupae, and a larval exuvium. Moderate damage, probably by this species, noted on one P. foetida vine where pupae and exuvium found. Another survey netted 6 more adults on same day at same location. This is a new State record. (Beardsley et al.).

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) counts and damage heavy (90 plus percent of leaves; 30 plus mites per square inch) in 0.25 acre of pole beans at Waianae Valley, Oahu, week ending December 17, 1976. (Kumashiro et al.). T. cinnabarinus counts and damage moderate to heavy on 0.75 acre of eggplant and 0.25 acre of pole beans at Waianae Valley, Oahu, week ending January 14. (Chun, Nakahara). LEAFMINER FLIES (Liriomyza spp.) moderate to heavy (30-60 percent of leaves heavily mined) on 5 acres of green onion (20-50 mines per leaf), 0.25 acres of tomato, and 1.5 acres of pole beans at Waianae Valley, week ending December 17, 1976. Heavy oviposition marks, 300-500 per square inch, on 0.5 acre of pole bean seedlings adjacent to green onion. (Kumashiro et al.). Continued heavy at Waianae Valley due in part to relatively warm and dry conditions week ending January 7. Counts (60-75 percent of leaves heavily mined) and damage heavy on 4 acres of green onion and 3 acres of pole beans at that locality. Earlier sample of bean leaves (3 weeks prior) revealed that only 8 percent of leafminer larvae parasitized. Infestations heavy (80 percent of leaves heavily mined) on 0.25 acre of pole beans at Waianae Valley and moderate (30-50 percent of leaves heavily mined) on 0.75 acre of eggplant on 0.5 acre of long squash, and on 0.25 acre of tomato at Lualualei and Waianae Valley, Oahu, week ending January 14. (Chun et al.). Liriomyza continued heavy in lower Waianae Valley on Oahu, week ending January 21. Counts and damage moderate to heavy (30-60 percent of leaves heavily mined) on 3 acres of pole beans, 4 acres of green onions, and 2,000 square feet of togan at that locality. Heavy infestations responsible for reduced yields and shorter harvesting periods. (Murai et al.).

CHINESE ROSE BEETLE (Adoretus sinicus) heavy damage noted on backyard plantings of pole beans at Kaumakani, Kauai, week ending December 24, 1976. (Lai et al.). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate to heavy on 0.25 acre of bush beans at Lualualei and on 2,000 square feet of eggplant and backyard plantings of tomato and yardlong beans at Pearl City, Oahu, week ending January 21. BEET ARMYWORM (Spodoptera exigua) counts and damage moderate to heavy (25-90 percent of leaves infested) on 1.5 acres of green onion at Waianae Valley and on one acre of bulb onion at Lualualei, Oahu, week ending January 21. ONION THRIPS (Thrips tabaci) counts moderate (fewer than 5 individuals per plant) on 0.5 acre of green onion and one acre of bulb onion at Lualualei, Oahu, week ending January 21. Infestations practically nil on surveyed green onion at Pearl City and Waianae Valley, Oahu. But damage moderate to heavy on onions at Lualualei and Pearl City. (Murai et al.).

Turf and pasture - GRASS WEBWORM (Herpetogramma licarsisalis) counts and damage heavy, (up to 20 larvae per square foot; 90+ percent defoliation) on 40-acre section of kikuyu and other pasture grasses at Kipahulu, Maui, week ending December 17, 1976. Adults heavy. (Miyahira).

Ornamentals - A WHITEFLY (Orchamoplatus mammaeferus) continually increasing in discovery area since first report. Light to moderate (less than 5-30 percent of leaves colonized) in several residences surveyed at Palolo, Oahu. Plants moderately infested (30 percent of leaves colonized) in late August now have as much as 75-80 percent of leaves infested with eggs and nymphs week ending November 12, 1976. O. mammaeferus infestations continued to increase at Palolo, week ending December 31. Plants now heavily infested, 80-90 percent of leaves colonized. Croton hedges heavily infested in earlier survey showed no further increase. Damage appeared negligible. Eggs to late instar nymphs light on Citrus sinensis (orange) at same locality December 28, 1976. Observed by M. Chun and L. Nakahara. Determined by S. Higa. This is a new host record. AZALEA LACE BUG (Stephanitis pyrioides) trace on one percent of terminals on azalea at Manoa, Oahu, week ending December 31, 1976. Old foliar damage heavy. (Chun, L. Nakahara).

Beneficial Insects - Activity of a GALL FLY (Procecidochares alani) moderate to heavy (16-96 percent of terminals galled) on Hamakua pamakani on Hawaii in December 1976. (Miyahira et al.). Activity moderate to heavy (55-75 percent of terminals galled) at Hualalai, Onomea, and Hoomau Ranch week ending January 14. (Matayoshi, Yoshioka). LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) (80-100 percent defoliation) and a TINGID BUG (Leptobyrsa decora) heavy on lantana in 600+ acres of pasture at Ulupalakua, Maui, week ending December 17, 1976. (Miyahira).

Miscellaneous - One adult of a VESPID WASP (Delta curvata) caught at large in office at Lihue, Kauai, by D. Sugawa, December 9, 1976. Determined by S. Higa. This is a new island record. (L. Nakahara). About 4,060 specimens of BROWN GARDEN SNAIL (Helix aspersa) recovered from infestation site at Waimea, Hawaii Island, up to December 9, 1976, in effort to eradicate this pest. (Entomol. Branch, State Dep. Agric.). Surveys for this snail in all suspected home sites outside treatment area at Waimea negative week ending January 14. No snails recovered from traps placed in pasture areas surrounding infestation site also. Snails, mainly live juveniles, still collected from infested area. (Matayoshi, Yoshioka).

DETECTION

NEW UNITED STATES RECORD

INSECTS

A DELPHACID PLANTHOPPER (Sardia pluto (Kirkaldy)) - HAWAII - Oahu Island. (p. 11).

NEW STATE RECORDS

INSECTS

A BRACONID WASP (Heterospilus baeticatus) - HAWAII - Oahu Island. (p. 11).

A NYMPHALID BUTTERFLY (Agraulis vanillae vanillae) - HAWAII - Oahu Island. (p. 11).

A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO - Curry County. (p. 7).

NEW COUNTY AND ISLAND RECORDS

INSECTS

AN AMBROSIA BEETLE (Xyleborus ferrugineus) - ALABAMA - Geneva (p. 7).

AN ARMORED SCALE (Diaspidiotus liquidambaris) - ALABAMA - Chambers (p. 7).

AN ARMORED SCALE (Fiorinia theae) - ALABAMA - Geneva (p. 6).

AN ARMORED SCALE (Lecanodiaspis prosopidis) - ALABAMA - Chambers, Montgomery (p. 7).

AN ARMORED SCALE (Rhizaspidiotus dearnessi) - ALABAMA - Barbour (p. 6).

A BRACONID WASP (Microctonus aethiopoides) - OHIO - Morrow, Richland, Ashland, Knox, Mercer (p. 8).

AN ICHNEUMONID WASP (Bathyplectes anurus) - INDIANA - Spencer, Dubois, Daviess (p. 7-8).

AN ICHNEUMONID WASP (Bathyplectes curculionis) - INDIANA - Randolph, Gibson, Spencer, Ripley, Dubois, Jennings, Union, Rush, Shelby, Grant, Fayette, Noble, Clay, Blackford, Jay (p. 8).

A MEALYBUG (Dysmicoccus obesus) - ALABAMA - Macon (p. 6).

PIGEON FLY (Pseudolynchia canariensis) - CALIFORNIA - San Joaquin (p. 7).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Stafford, Harper, Kingman, Sumner, Ellsworth, Stevens, Grant, Kiowa, Gove, Lane, Pawnee, Barton, Pratt, Ness, Rush, Trego, Lincoln, Russell, Edwards, Ford (p. 8-9).

- A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) - KANSAS - Stafford (p. 9).
- A SCOLYTID BEETLE (Leperisinus aculeatus) - WISCONSIN - La Crosse (p. 7).
- A SCOLYTID BEETLE (Leperisinus californicus) - NEW MEXICO - Curry (p. 7).
- A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Montgomery (p. 5), Crenshaw (p. 7).
- A SOFT SCALE (Ceroplastes floridensis) - ALABAMA - Coffee (p. 5).
- A VESPID WASP (Delta curvata) - HAWAII - Kauai (p. 12).

CORRECTIONS

CPPR 1(48-52):896 - Distribution of Alfalfa Weevil - TEXAS - Add El Paso, Hudspeth, and Culberson Counties as infested in 1976.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
<u>Mycosphaerella</u> sp. a fungus	imperfect	on <u>Drynaria</u> fern leaves	Miami	Thailand	FL
<u>Puccinia horiana</u> P. Henn. a rust	uredial	on <u>Chrysanthemum</u> leaves from baggage	Hawaii	Korea	HI
<u>Carposina niponensis</u> Walsingham a carposinid moth	larval	with apples from baggage	Hawaii	Japan	HI
<u>Ceratitis capitata</u> (Wiedemann) Mediterranean fruit fly	larval	in coffee berries	Miami	Brazil	FL
<u>Dacus dorsalis</u> Hendel oriental fruit fly	larval	in guavas from baggage	Hawaii	Hawaii	CA
<u>Heterotermes tenuis</u> (Hagen) a termite	adult	in cardboard cartons from mail	Port Canaveral	Eleuthera	USA
<u>Ips cembrae</u> (Heer) a scolytid beetle	adult	in wood dunnage	Detroit	Europe	USA
<u>Ips typographus</u> (Linnaeus) a scolytid beetle	all	in dunnage with machinery	New York	Germany	USA
<u>Laspeyresia splendana</u> (Hubner) an olethreutid moth	larval	in chestnuts	New York	Italy	NY
<u>Maruca testulalis</u> (Geyer) a pyralid moth	adult	with aircraft	Hawaii	Guam	USA

<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
	<u>Megastigmus suspectus</u> Borries a Torymid seed chalcid	Hoboken	Romania	GA
adult	<u>Operophtera brumata</u> (Linnaeus) winter moth	Dover	Germany	DE
adult	<u>Orthotomicus erosus</u> (Wollaston) a scolytid beetle	Baltimore	Portugal	OH
pupal	<u>Pieris brassicae</u> (Linnaeus) a pierid butterfly	Charleston	Spain	SC
adult	<u>Pissodes pini</u> (Linnaeus) a weevil	Detroit	Europe	USA
larval	<u>Stenomoma catenifer</u> Walsingham a stenomid moth	Roma	Mexico	TX
larval	<u>Trogoderma granarium</u> Everts Khapra beetle	New York	Iran	USA
adult	<u>Vinsonia stellifera</u> (Westwood) a coccid scale	Miami	Costa Rica	FL
adult	<u>Xyleborus eurygraphus</u> (Ratzeburg) a scolytid beetle	New Orleans	Italy	KS
adult	<u>Theba pisana</u> (Muller) white garden snail	Houston	South Africa	TX

PEST DETECTION IN THE UNITED STATES - 1976

There were 16 new United States records reported in the "Cooperative Plant Pest Report" during 1976. These records include 14 insects and mites and two diseases. Six pests were reported for the first time on the North American continent -- two in Florida and one each in New York, Pennsylvania, Texas, and Washington, DC. None of the species reported in Hawaii or Puerto Rico is known from the continental U.S. There were 59 new State distribution records of species known to occur in the United States -- two diseases, 53 insects and mites, two snails, and two weeds.

NEW UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CPPR Page</u>	<u>Economic Importance</u>
<u>Ammophila centralis</u> <u>a sphecid wasp</u>	Texas	Cameron	Mexico, Central America, Venezuela	At large	8	Noneconomic
<u>Caryedon serratus</u> (Olivier) 4/ <u>groundnut bruchid</u>	Puerto Rico	-	Hawaii, Mexico, Caribbean, Africa, Asia	<u>Tamarindus indica</u>	261	Economic
<u>Delphacodes nigrifacies</u> (Muir) a delphacid planthopper	Florida	Palm Beach	West Indies, Central and South America	<u>Paspalum notatum</u>	765	Probably non-economic
<u>Dichromothrips corbetti</u> (Priesner) 2/ a thrips	Florida	Lee	Hawaii, Southeast Asia	Vanda orchid	341	Could be economic
<u>Gotra sp. 1/ 4/ an ichneumonid wasp</u>	Hawaii	Oahu Island	Indo-Papua area	At large	869	Probably non-economic

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CPPR Page</u>	<u>Economic Importance</u>
Little cherry virus	Washington	Okanogan	Asia, Europe, Australia, Canada	Fruiting cherry	838	Economic
<u>MacroGLOSSUM pyrrhOSTICTUM</u> (Butler) 1/4/ a sphingid moth	Hawaii	Oahu Island	Asia	At large	764	Probably noneconomic
<u>Nesothrips brevicollis</u> (Bagnall) 2/ a thrips	Florida	Dade	Asia, Mauritius, Réunion Rodriguez	Cocos <u>nucifera</u>	95	Noneconomic
<u>Ooencyrtus chrysopae</u> Crawford an encyrtid wasp	Florida	Broward	Lesser Antilles	<u>Chrysopa</u> sp.	866	Probably noneconomic
<u>Orchamoplatus mammaeferus</u> (Quaintance & Baker) a whitefly 1/4/ a whitefly 1/4/	Hawaii	Oahu Island	Pacific Basin	<u>Codiaeum variegatum</u>	372	Could be economic
<u>Phoma cryptomeriae</u> Kawamura 1/ <u>cryptomeria needle blight</u>	Washington, DC.		Asia	<u>Cryptomeria</u> spp.	839	Could be economic
<u>Phytoseius woodburyi</u> De Leon a phytoseiid mite	Florida	Dade	Carribean	<u>Quercus virginiana</u>	841	Probably beneficial
<u>Pygmephorus primitivus</u> (Krczal) 1/ a pygmephoiid mite	Texas	Travis	Europe	<u>Quercus virginiana</u>	840	Noneconomic
<u>Scotothrips claripennis</u> (Moulton) 3/ a thrips	Florida	Dade	Hawaii, Mexico, Carribean, southern Africa, India	Cocos <u>nucifera</u>	95	Noneconomic

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CPPR Page</u>	<u>Economic Importance</u>
<u>Tmetothrips subapterus</u> (Haliday) <u>1/</u> a thrips	Pennsylvania	McKean	Europe	<u>Stellaria</u> <u>graminea</u>	798	Probably noneconomic
<u>Xyleborus validus</u> <u>1/</u> a scolytid beetle	New York	Nassau	Asia	Beech, possibly Norway maple	610	Could be economic

- 1/ First report in Western Hemisphere.
- 2/ First time reported from North American continent.
- 3/ New continental U.S. record.
- 4/ Not known to occur in continental U.S.

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Aculus comatus</u> an eriophyid mite	Washington	Clark	<u>Corylus</u> sp.	440
<u>Acyrtosiphon</u> <u>kondoi</u>	Kansas	Riley	<u>Medicago</u> <u>sativa</u>	218
blue alfalfa aphid	New Mexico	Dona Ana	<u>Medicago</u> <u>sativa</u>	218
<u>Agrilus anxius</u> bronze birch borer	Missouri	Jackson	<u>Betula</u> sp.	320
<u>Aneristus</u> sp. a eulophid wasp	Hawaii	Oahu Island	<u>Saissetia</u> <u>coffeae</u>	516
<u>Aonidomytilus</u> <u>hyperici</u> an armored scale	Alabama	Barbour	<u>Hypericum</u> <u>fasciculatum</u>	762
<u>Ascosphaera apis</u> chalkbrood	Indiana	Carroll	<u>Apis</u> <u>mellifera</u>	242
<u>Auleutes</u> <u>tuberculatus</u> a weevil	Colorado	Weld	Pasture	139
<u>Crupina vulgaris</u> common crupina	California	Sonoma	Golf course & pasture	467
<u>Dactynotus</u> <u>richardsi</u> an aphid	Utah	Cache	<u>Grindelia</u> <u>squarrosa</u>	8
<u>Diatraea</u> <u>grandiosella</u> southwestern corn borer	Indiana	Vanderburgh	<u>Zea mays</u>	4
<u>Dioryctria</u> <u>zimmermani</u> Zimmerman pine moth	Texas	Orange	<u>Pinus</u> <u>virginiana</u>	440
<u>Dolichotetranychus</u> <u>carnea</u> a false spider mite	Oklahoma	Harper	<u>Cynodon</u> <u>dactylon</u>	862
<u>Eriococcus insignis</u> an eriococcid scale	Minnesota	Ramsey	<u>Agropyron</u> <u>repens</u>	835
<u>Eucratocerus</u> <u>gibbifrons</u> an anobiid beetle	Maryland	Baltimore	Blacklight trap	646

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Forficula</u> <u>auricularia</u> European earwig	Hawaii	Mauai Island	At large	138
<u>Helix aspersa</u> brown garden snail	Hawaii	Hawaii Island	Residence	846
	Nevada	Clark	Garden	576
<u>Heterodera</u> <u>glycines</u> soybean cyst nematode	Texas	Bowie	<u>Glycine max</u>	671
<u>Hydrilla</u> <u>verticillata</u> hydrilla	California	Yuba	-	866
<u>Hydrothassa</u> <u>vittata</u> a chrysomelid beetle	Maryland	Baltimore	<u>Ranunculus</u> sp. probably <u>repens</u>	643
<u>Hypericicoccus</u> <u>hyperici</u> an eriococcid scale	Alabama	Barbour	<u>Hypericum</u> <u>fasciculatum</u>	487
<u>Hypoderma bovis</u> northern cattle grub	Florida	Brevard	Steers	58
<u>Leperisinus</u> <u>californicus</u> a scolytid beetle	Kansas	Stevens	<u>Fraxinus</u> sp.	864
<u>Leptoglossus</u> <u>corculus</u> a coreid bug	Oklahoma	Payne	<u>Pinus</u> <u>sylvestris</u>	840
<u>Ligyrocoris</u> <u>litigiosus</u> a lygaeid bug	Hawaii	Oahu Island	<u>Bidens</u>	82
<u>Lymantria dispar</u> gypsy moth	California	Santa Clara	Residence	720
	Wisconsin	Outagamie	Residence	867
<u>Mesochorus agilis</u> an ichneumonid wasp	Wisconsin	Sheboygan	<u>Bathyplectes</u> <u>curculionis</u>	113
<u>Microlarinus</u> <u>lareynii</u> a puncturevine seed weevil	Kansas	Barber	<u>Tribulus</u> <u>terrestris</u>	804
<u>Nematodes atropos</u> an eucnemid beetle	Maryland	Baltimore	<u>Quercus</u> sp.	642

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Octotoma plicatula</u> a chrysomelid beetle	Maryland	Somerset	<u>Campsis</u> <u>radicans</u>	643
<u>Odontaleyrodes</u> <u>rhododendri</u> a whitefly	Hawaii	Hawaii Island	<u>Rhododendron</u> sp.	764
<u>Otiiorhynchus</u> <u>sulcatus</u> black vine weevil	Hawaii	Kauai Island	At large	538
<u>Oulema melanopus</u> cereal leaf beetle	Connecticut	Litchfield	Oats	720
<u>Paraleyrodes</u> <u>naranjæ</u> a whitefly	Hawaii	Oahu Island	<u>Citrus limon</u>	764
<u>Pseudaonidia</u> <u>pæoniae</u> an armored scale	Delaware	New Castle	<u>Camellia</u>	320
<u>Pseudocneorhinus</u> <u>bifasciatus</u> a Japanese weevil	Illinois	Jackson	Shrubs & flowers	595
<u>Pseudomyrmex</u> <u>gracilis mexicanus</u> an ant	Hawaii	Oahu Island	Residence	869
<u>Psylla pyricola</u> pear psylla	Colorado	Mesa	<u>Pyrus</u> sp.	135
<u>Pulvinaria</u> <u>ericicola</u> a soft scale	Alabama	Barbour	<u>Vaccinium</u> <u>arboreum</u>	391
<u>Rhizoecus</u> <u>floridanus</u> a mealybug	Alabama	Lee	Berlese	487
<u>Rumina decollata</u> a subulinid snail	Nevada	Clark	Ivy	577
<u>Scaphoideus densus</u> a leafhopper	Kentucky	Fayette	Malaise trap	11
<u>Scaphoideus incisus</u> a leafhopper	Kentucky	Pulaski	Malaise trap	11
<u>Scaphoideus</u> <u>opalinus</u> a leafhopper	Indiana	Marion	<u>Helianthus</u> <u>tuberosus</u>	863

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CPPR Page</u>
<u>Scirtes</u> sp. a helodid beetle	Hawaii	Oahu Island	Blacklight trap	67
<u>Scyphophorus</u> <u>acupunctatus</u> a weevil	Nevada	Clark	<u>Yucca</u> sp.	864
<u>Spaelotis</u> <u>clandestina</u> a noctuid moth	West Virginia	Hardy	Black oak	493
<u>Sphenophorus</u> <u>cicatristriatus</u> a billbug	Oregon	Sherman	Lawn	274
<u>Stephanitis</u> <u>pyrioides</u> azalea lace bug	Hawaii	Oahu Island	<u>Rhododendron</u> sp.	422
<u>Synanthedon</u> <u>rhododendri</u> rhododendron borer	Alabama	Marshall	<u>Rhododendron</u> spp.	6
<u>Symcoccus</u> <u>spirapunctus</u> a mealybug	Alabama	Lee	<u>Cynodon</u> <u>dactylon</u>	792
<u>Tetrastichus</u> <u>julis</u> a eulophid wasp	Maryland	Allegany	<u>Oulema</u> <u>melanopus</u>	282
	Vermont	Bennington	<u>Oulema</u> <u>melanopus</u>	368
<u>Toumeyella</u> <u>pini</u> a soft scale	Indiana	Marion	<u>Pinus</u> <u>resinosa</u>	191
<u>Tropidosteptes</u> <u>pacificus</u> a plant bug	Idaho	Latah	<u>Fraxinus</u> <u>quadrangulata</u>	92
<u>Xylosandrus</u> <u>compactus</u> a scolytid beetle	Alabama	Mobile	<u>Quercus</u> , <u>Cornus</u> , et al.	761
	Louisiana	New Orleans	<u>Magnolia</u> <u>grandiflora</u>	558

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Coop. Plant Pest Rep.
2(1-4):17-23, 1977

Surveys for Alfalfa Weevil Parasites during 1976

R.J. Dysart and R.G. Bingham 1/ 2/

For several years, our Beneficial Insects Research Laboratory has maintained file records on all releases and recoveries of alfalfa weevil (Hypera postica) parasites in the eastern United States. Information concerning parasite releases was first published by Brunson and Coles (1968) and an updated revision of both release and recovery data has been published (Dysart and Day, 1976).

Parasite recovery information for our files has been obtained from our own surveys plus those performed by workers in many States. The parasites were either reared or swept at each locality. Determinations of species were made by R.J. Dysart. In order to inform all interested workers, new county records for parasite recoveries have traditionally been published in the "Cooperative Plant Pest Report." Our own surveys this year yielded 76 new county recovery records involving 5 parasite species. (See Table 1).

The most noteworthy new distribution records were those of the introduced ichneumonid larval parasite, Bathyplectes anurus (Thomson), which has dramatically increased its rate of dispersal in recent years. During our surveys this spring, B. anurus was recovered for the first time in 36 new counties. The parasite had been previously released in only 8 of these counties. Recoveries of B. anurus in Tennessee, Connecticut, and Vermont were new State records; no releases of the parasite were ever made in the last two States.

In the Northeast, B. anurus has now moved up the Hudson Valley and is well into New England. Natural dispersal to the south and west continues to be quite slow.

Samples of weevil larvae taken during our 1976 survey, and reared to maturity, yielded the following averages of parasitism for B. anurus: Connecticut 22 percent, Maryland (eastern) more than one percent, Massachusetts 19 percent, New Jersey (northern) 59 percent, New York (Hudson River Valley) 5 percent, Pennsylvania (eastern) 61 percent, Pennsylvania (southwestern) more than one percent, Tennessee (eastern) one percent, and Vermont (southern) 6 percent.

1/ Beneficial Insects Research Laboratory, USDA, ARS, 501 S. Chapel St., Newark, Delaware 19713.

2/ G.W. Angalet and W.H. Day also aided in our survey work.

Table 1. New County Recovery Records for Alfalfa Weevil Parasites - 1976

<u>State</u>	<u>County</u>	<u>Locality</u>	<u>Collection date</u>	<u>Parasite Species 3/</u>
CONNECTICUT	Hartford	Granby	May 20	Ba Bc Ma Mc
	Litchfield	Sharon	May 6	Ba Bc Ma
	Middlesex	North Plain	May 7	Ba Bc Ma
	New Haven	Cheshire	May 6	Ba Bc Ma
	New London	Hamburg	May 7	Ba Bc Ma
	Tolland	Storrs	May 20	Ba
	Windham	Canterbury	May 20	Ba Bc
MARYLAND	Anne			
	Arundel	Odenton	Apr. 20	Ba
	Howard	Glenelg	Apr. 28	Ba
	Talbot	Easton	Apr. 20	Ba
	Worcester	Snow Hill	Apr. 26	Bc
MASSACHUSETTS	Berkshire	Great Barrington	May 13	Ba
	Franklin	Greenfield	May 21	Ba
	Hampden	Southwick	May 20	Ba
	Worcester	Fitchburg	June 10	Ba
	Worcester	Rutland	May 20	Ma
NEW JERSEY	Bergen	Oakland	May 12	Ba
	Camden	Cedar Brook	May 19	Ba
	Gloucester	Williamstown	May 19	Ba
	Hunterdon	Lebanon	May 5	Ba
	Mercer	Pennington	May 5	Ba
	Middlesex	Dayton	May 12	Mc
	Morris	Chester	May 19	Ba
	Passaic	Pompton Lakes	May 12	Ba Bc Ma
NEW YORK	Albany	Preston		
		Hollow	May 14	Bc Ma
	Columbia	Ancram	May 6	Ba
	Greene	East Durham	May 14	Bc
	Greene	Lexington	May 6	Ma
	Herkimer	Mohawk	June 9	Mc
	Montgomery	Nelliston	June 11	Ba
	Rensselaer	Berlin	May 13	Ba
	Saratoga	Schuylerville	May 14	Ba
	Schenectady	Duanesburg	May 14	Bc Ma
	Washington	Cambridge	May 13	Ba
PENNSYLVANIA	Adams	Gettysburg	Apr. 26	Ba Bc
	Allegheny	Clinton	June 23	Bc
	Fayette	Farmington	June 3	Ba Bc Mc Ti
	Greene	Holbrook	June 23	Bc Ma
	Lackawanna	Clarks Summit	June 22	Bc
	Lackawanna	Cortez	May 5	Ma
	Luzerne	Conyngham	Apr. 26	Ba
	Pike	Tafton	May 5	Ma
	Schuylkill	Pine Grove	Apr. 26	Ba Bc
	Somerset	Listonburg	June 3	Ba
	Wayne	Varden	May 5	Ma
	Wyoming	Falls	June 22	Bc

Table 1 (cont.)

<u>State</u>	<u>County</u>	<u>Locality</u>	<u>Collection date</u>	<u>Parasite Species</u> <u>3/</u>
TENNESSEE	Cocke	Newport	May 9	Ba
	Cumberland	Crossville	May 9	Ba
	Greene	Greeneville	May 11	Ba
VERMONT	Bennington	Pownal	May 13	Ba
	Rutland	Wells	May 13	Ma
	Windham	Brattleboro	June 9	Ba Mc
WEST VIRGINIA	Marshall	Bellton	June 27	Ti

- 3/ Ba = Bathyplectes anurus (Thomson).
 Bc = B. curculionis (Thomson)
 Ma = Microctonus aethiopoides Loan
 Mc = M. colesi Drea
 Ti = Tetrastichus incertus (Ratzeburg)

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U.S. Dep. Agric.
 Coop. Plant Pest Rep.
 2(1-4):24-26, 1977

First Report of Comperia merceti (Compere) in
Wisconsin (Hymenoptera: Encyrtidae)

Ralph W. Howard 1/ 2/ and James W. Mertins 2

The host specific encyrtid parasitoid Comperia merceti (Compere) attacks oothecae of brownbanded cockroach Supella longipalpa (Fabricius) in Kentucky, Georgia, Virginia, California, Maryland, Hawaii, Arizona, Illinois, Florida, Kansas, Missouri, South Carolina, Africa, South America, Central America, and the West Indies (Gomes, 1942; Muesebeck, Krombein, and Townes, 1951; Roth and Willis, 1960; Gordh, 1975 3/). Details of its biology were given by Lawson (1954) and Gordh (1973). The northernmost limit of its range may now be extended to include Wisconsin, as we have found flourishing populations of this wasp in housing units on the Madison campus of the University of Wisconsin. Specimens were first collected by Ralph W. Howard on March 18, 1975. (Confirmation of species identity was kindly provided by Dr. Gordon Gordh, Systematic Entomology Laboratory, U.S. Department of Agriculture). The large numbers of brownbanded cockroaches in these housing units appear to corroborate the prediction by Gordh (1973) that C. merceti will not function as an efficient agent of biological population suppression.

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- 1/ Department of Entomology, University of Wisconsin, Madison, Wisconsin 53706
- 2/ Present address: Wood Products Insect Laboratory, Forest Service, USDA, P.O. Box 2008, Evergreen Station, Gulfport, Mississippi 39501
- 3/ Personal communication to J.W. Mertins dated April 7, 1975. Data from records of the U.S. National Museum.

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):27, 1977

STATE SURVEY COORDINATORS

Alabama	Dr. Kirby L. Hays, Head, Zoology-Entomology Department, Funchess Hall, Auburn University, Auburn, AL 36830 Phone: 205-826-4850
Alaska	Dr. Richard H. Washburn, Research Entomologist, Agricultural Experiment Station, University of Alaska, P.O. Box AE, Palmer, AK 99645 Phone: 907-745-3257
Arizona	Dr. Dave T. Langston, Extension Specialist-Entomology, 4341 E. Broadway Road, Phoenix, AZ 85040 Phone: 602-271-3256 or 602-271-4456
Arkansas	Dr. F.D. Miner, Head, Department of Entomology, University of Arkansas, Fayetteville, AR 72701 Phone: 501-575-2451
California	Mr. Donald R. Dilley, Principal Staff Entomologist, Division of Plant Industry, Special Services, California Department of Food and Agriculture, 1220 N Street, Room 301, Sacramento, CA 95814 Phone: 916-445-3588
Colorado	Dr. W. Don Fronk, Department of Zoology and Entomology, Colorado State University, Fort Collins, CO 80523 Phone: 303-491-5843
Connecticut	Mr. George W. Schuessler, Deputy State Entomologist, Agricultural Experiment Station, Box 1106, New Haven, CT 06504 Phone: 203-787-7421
Delaware	Dr. Dale F. Bray, Head, Department of Entomology and Applied Ecology, University of Delaware, Newark, DE 19711 Phone: 302-738-2526
Florida	Mr. H.L. Jones, Director, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville, FL 32602 Phone: 904-372-3505
Georgia	Mr. Carl M. Scott, Jr., Director, Division of Entomology, Georgia Department of Agriculture, 19 Hunter Street, Room 304, Atlanta, GA 30334 Phone: 404-656-3641
Hawaii	Mr. Larry M. Nakahara, Hawaii State Department of Agriculture, P.O. Box 22159, Honolulu, HI 96822 Phone: 808-941-3071, Ext. 165 or 130
Idaho	Dr. A.R. Gittins, Head, Department of Entomology, College of Agriculture, University of Idaho, Moscow, ID 83843 Phone: 208-885-6595
Illinois	Mr. Kevin Black, Extension Entomologist, University of Illinois and Illinois Natural History Survey, Natural Resources Building, Urbana, IL 61801 Phone: 217-333-6651

Indiana Dr. Eldon E. Ortman, Head, Department of Entomology,
Purdue University, West Lafayette, IN 47907
Phone: 317-493-9185

Iowa Dr. H.J. Stockdale, Extension Entomologist, Room
103 Insectary, Iowa State University, Ames, IA 50011
Phone: 515-294-1101

Kansas Dr. Richard J. Sauer, Head, Department of Entomology,
Kansas State University, Manhattan, KS 66506
Phone: 913-532-6154

Kentucky Dr. R.A. Scheibner, Extension Specialist, Department
of Entomology, University of Kentucky, Lexington,
KY 40506 Phone: 606-258-5638

Louisiana Dr. L.D. Newsom, Head, Department of Entomology,
Louisiana State University, Baton Rouge, LA 70803
Phone: 504-388-1634

Maine Dr. J.B. Dimond, Head, Department of Entomology,
University of Maine, Orono, ME 04473
Phone: 207-581-7704

Maryland Dr. W.C. Harding, Jr., Extension Entomologist,
Department of Entomology, University of Maryland,
College Park, MD 20742 Phone: 301-454-3845

Massachusetts Dr. James Kring, Department of Entomology, University
of Massachusetts, Amherst, MA 01002 Phone: 413-
545-2285

Michigan Dr. James E. Bath, Chairman, Department of Entomology,
Michigan State University, East Lansing, MI 48824
Phone: 517-355-4665

Minnesota Mr. Robert B. Flaskerd, Director, Division of Plant
Industry, Minnesota Department of Agriculture, 670
State Office Building, St. Paul, MN 55155
Phone: 612-296-3347

Mississippi Dr. Daniel L. Shankland, Head, Department of
Entomology, P.O. Drawer EM, Mississippi State
University, Mississippi State, MS 39762
Phone: 601-325-4541

Missouri Dr. W.S. Craig, Extension Entomologist, Department
of Entomology, 1-87 Agriculture Building, University
of Missouri, Columbia, MO 65201
Phone: 314-882-3446

Montana Dr. Gary L. Jensen, Extension Entomologist, Lewis
Hall, Montana State University, Bozeman, MT 59715
Phone: 406-994-2440

Nebraska Dr. Elvis A. Dickason, Chairman, Department of
Entomology, University of Nebraska, Lincoln, NE
68583 Phone: 402-472-2123

- Nevada Mr. Harry E. Gallaway, Director, Division of Plant Industry, Nevada Department of Agriculture, P.O. Box 11100, Reno, NV 89510 Phone: 702-784-6401
- New Hampshire Mr. Arthur H. Mason, State Entomologist, New Hampshire Department of Agriculture, Nesmith Hall, Durham, NH 03824 Phone: 603-862-2300
- New Jersey Dr. Billy R. Wilson, Chairman, Department of Entomology and Economic Zoology, College of Agriculture and Environmental Science, Rutgers University, New Brunswick, NJ 08903 Phone: 201-247-1766, Ext. 1774
- New Mexico Dr. William A. Iselin, Division of Plant Industry, New Mexico Department of Agriculture, Box 3BA, Las Cruces, NM 88003 Phone: 505-646-3207
- New York Dr. Edward H. Smith, Department of Entomology, Cornell University, Ithaca, NY 14853 Phone: 607-256-3253
- North Carolina Dr. Gerald T. Weekman, Extension Entomologist, North Carolina State University, P.O. Box 5215, State College Station, Raleigh, NC 27607 Phone: 919-755-2746
- North Dakota Mr. William J. Brandvik, State Entomologist, Department of Agriculture, State Capitol, Bismarck, ND 58501 Phone: 701-224-2234
- Ohio Dr. Robert E. Treece, Ohio Agricultural Research and Development Center, Wooster, OH 44691 Phone: 216-264-2540
- Oklahoma Dr. D.C. Peters, Head, Department of Entomology, Oklahoma State University, Stillwater, OK 74074 Phone: 405-624-5527
- Oregon Mr. William Kosesan, Administrator, Plant Division, Oregon State Department of Agriculture, Agriculture Building, 635 Capital, NE., Salem, OR 97310 Phone: 503-378-3776
- Pennsylvania Dr. Ke Chung Kim, The Frost Entomological Museum, Department of Entomology, The Pennsylvania State University, 201 Patterson Building, University Park, PA 16802 Phone: 814-865-1895
- Puerto Rico Dr. Mario E. Pérez-Escolar, Acting Director, Agricultural Experiment Station, University of Puerto Rico, Rio Piedras, PR 00928 Phone: 809-767-9705
- Rhode Island Dr. Rudolph D'Andrea, Chief, Division of Agriculture, Department of Natural Resources, Veterans Memorial Building, Providence, RI 02903 Phone: 401-277-2781

South Carolina	Dr. J.B. Kissam, Professor, Extension Entomology and Economic Zoology, 105 Long Hall, Clemson University, Clemson, SC 29631 Phone: 803-656-3113
South Dakota	Dr. Robert J. Walstrom, Head, Entomology-Zoology Department, South Dakota State University, Brookings, SD 57006 Phone: 605-688-6176
Tennessee	Mr. H.L. Bruer, Director, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville, TN 37204 Phone: 615-741-1551
Texas	Dr. P.L. Adkisson, Head, Department of Entomology, Texas A&M University, College Station, TX 77843 Phone: 713-845-2516
Utah	Mr. Reed S. Roberts, Extension Entomologist, Utah State University, Logan, UT 84322 Phone: 801-752-4100, Ext. 7871
Vermont	Mr. Phil R. Benedict, Plant Pest Control Division, Vermont Department of Agriculture, 116 State Street, State Office Building, Montpelier, VT 05602 Phone: 802-828-2420 or 802-828-2431
Virginia	Dr. J.M. Grayson, Head, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 Phone: 703-951-6341
Washington	Dr. Robert F. Harwood, Chairman, Department of Entomology, Washington State University, Pullman, WA 99163 Phone: 509-335-5504
West Virginia	Mr. Albert E. Cole, Director, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston, WV 25305 Phone: 304-348-2212
Wisconsin	Mr. Philip W. Smith, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison, WI 53713 Phone: 608-266-7133
Wyoming	Mr. Walter H. Patach, Director, Division of Plant Industry, Wyoming Department of Agriculture, 2219 Carey Avenue, Cheyenne, WY 82002 Phone: 307-777-7321

Revised January 21, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):28-31, 1977

COOPERATIVE SURVEY ENTOMOLOGISTS

Alabama	Mr. H. Frank McQueen, Survey Entomologist, Extension Hall, Auburn University, Auburn, AL 36830 Phone: 205-826-4987
Arizona	Vacant
Arkansas	Dr. Bill F. Jones, Department of Entomology, University of Arkansas, Fayetteville, AR 72701 Phone: 501-575-2451
California	Mr. Lyndon S. Hawkins, Survey Entomologist, Division of Plant Industry, Special Services, California Department of Food and Agriculture, 1220 N Street, Room 301, Sacramento, CA 95814 Phone: 916-445-5986
Colorado	Modified Agreement
Delaware	Modified Agreement
Florida	Dr. Frank W. Mead, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville, FL 32602 Phone: 904-372-3505, Ext. 285
Hawaii	Mr. Larry M. Nakahara, Hawaii State Department of Agriculture, P.O. Box 22159, Honolulu, HI 96822 Phone: 808-941-3071, Ext. 165 or 130
Idaho	Modified Agreement
Illinois	Mr. Kevin D. Black, University of Illinois, 169 Natural Resources Building, Urbana, IL 61801 Phone: 217-333-6652
Indiana	Mr. Robert W. Meyer, Department of Entomology, Purdue University, West Lafayette, IN 47907 Phone: 317-493-9705
Iowa	Dr. Jerald R. DeWitt, Extension Entomologist, 103 Insectary, Iowa State University, Ames, IA 50011 Phone: 515-294-1101
Kansas	Dr. K.O. Bell, Jr., Division of Entomology, Kansas State Board of Agriculture, 1720 S. Topeka Avenue, Topeka, KS 66612 Phone: 913-296-3016
Kentucky	Mr. Phillip E. Sloderbeck, Survey Entomologist, Department of Entomology, University of Kentucky, Lexington, KY 40506 Phone: 606-258-5955
Maine	Mr. Arthur Gall, Department of Entomology, University of Maine, Orono, ME 04473 Phone: 207-581-7703
Maryland	Dr. John L. Hellman, Department of Entomology, University of Maryland, College Park, MD 20742 Phone: 301-454-3845

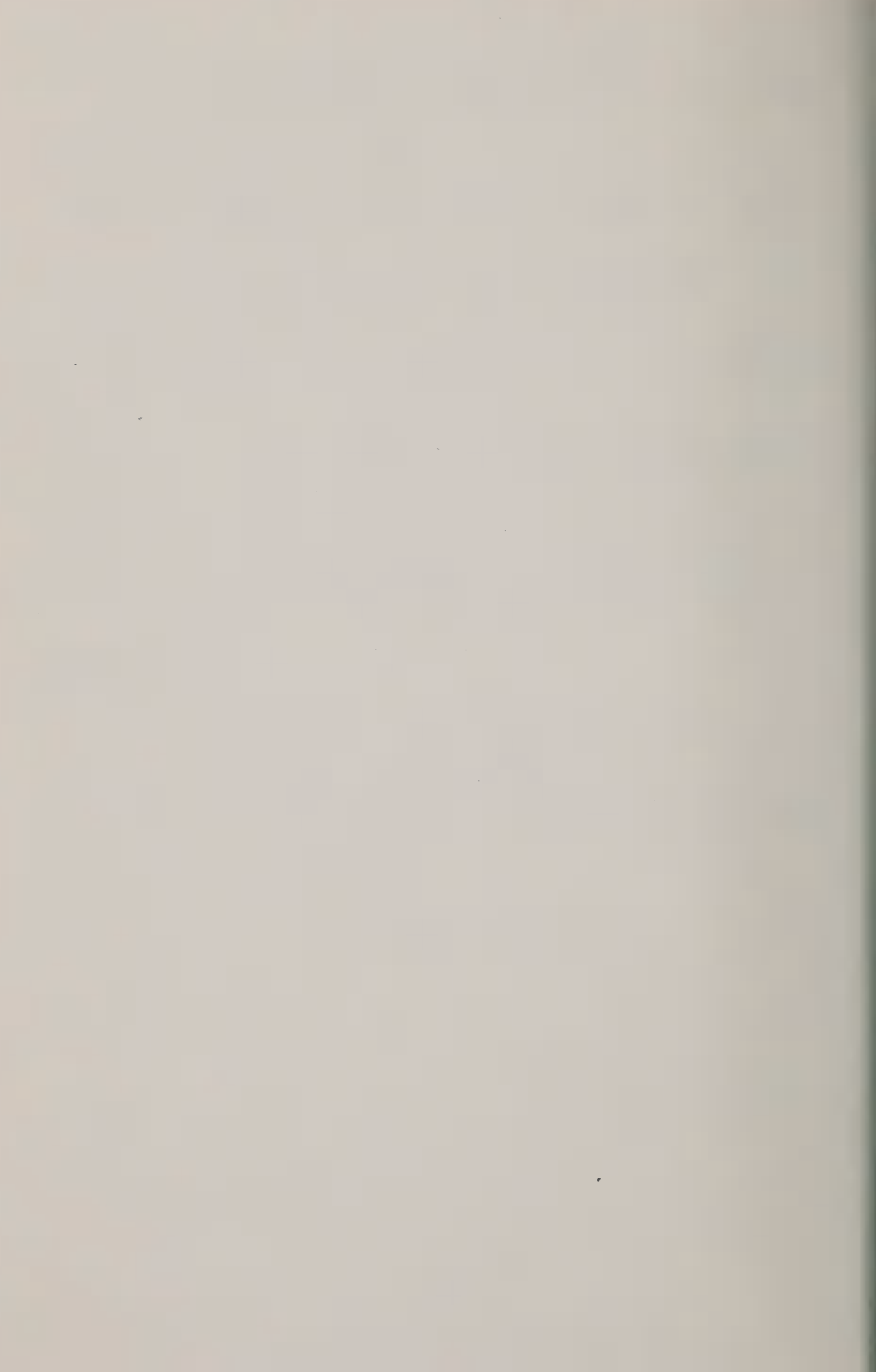
Massachusetts Modified Agreement

- Michigan Dr. M. Keith Kennedy, Department of Entomology,
Michigan State University, East Lansing, MI 48824
Phone: 517-353-3890
- Minnesota Dr. Dharma Sreenivasam, Division of Plant Industry,
Minnesota Department of Agriculture, 670 State
Office Building, St. Paul, MN 55155
Phone: 612-296-3347
- Mississippi Mr. Ronald E. Anderson, Survey Entomologist, P.O.
Drawer EM, Mississippi State University, Mississippi
State, MS 39762 Phone: 601-325-4541
- Missouri Dr. Ralph E. Munson, Department of Entomology, 1-87
Agriculture Building, University of Missouri,
Columbia, MO 65201 Phone: 314-882-3748
- Montana Modified Agreement
- Nebraska Dr. David L. Keith, Extension-Survey Entomologist,
Department of Entomology, University of Nebraska,
Lincoln, NE 68583 Phone: 402-472-2123
- Nevada Modified Agreement
- New Hampshire Dr. John F. Burger, Department of Entomology,
Nesmith Hall, University of New Hampshire, Durham,
NH 03824 Phone: 603-862-1707
- New Mexico Dr. William A. Iselin, Division of Plant Industry,
New Mexico Department of Agriculture, Box 3BA, Las
Cruces, NM 88003 Phone: 505-646-3207
- New York Dr. Harold R. Willson, Survey Entomologist, Depart-
ment of Entomology, Caldwell Hall, Cornell University,
Ithaca, NY 14853 Phone: 607-256-3222
- North Carolina Mr. Thomas N. Hunt, Survey Entomologist, 2309
Gardner Hall, North Carolina State University,
Raleigh, NC 27607 Phone: 919-737-2831
- North Dakota Mr. Calvin G. Scholl, Assistant State Entomologist,
Entomology Department, North Dakota State University,
Fargo, ND 58102 Phone: 701-237-7581
- Ohio Vacant
- Oklahoma Mr. Don C. Arnold, Department of Entomology,
Oklahoma State University, Stillwater, OK 74704
Phone: 405-624-5531
- Oregon Dr. Richard L. Penrose, Plant Division, Oregon State
Department of Agriculture, Agriculture Building, 635
Capital, N.E., Salem, OR 97310 Phone: 503-378-3776

Pennsylvania	Dr. Ke Chung Kim, The Frost Entomological Museum, Department of Entomology, The Pennsylvania State University, 201 Patterson Building, University Park, PA 16802 Phone: 814-865-1895
Rhode Island	Modified Agreement
South Carolina	Mr. Heyward B. Douglass, Survey Entomologist, 104 Long Hall, Clemson University, Clemson, SC 29631 Phone: 803-656-3113
South Dakota	Dr. David D. Walgenbach, Entomology-Zoology Department, South Dakota State University Brookings, SD 57006 Phone: 605-688-6176
Tennessee	Mr. Chester D. Gordon, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville, TN 37204 Phone: 615-741-1551
Texas	Dr. J.A. Jackman, Department of Entomology, 301 Biological Science Building, Texas A&M University, College Station, TX 77843 Phone: 713-845-1661
Utah	Modified Agreement
Virginia	Dr. William A. Allen, Extension Specialist & Survey Entomologist, Department of Entomology, 312 Price Hall, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 Phone: 701-951- 6772
Washington	Modified Agreement
West Virginia	Mr. J.D. Hacker, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston, WV 25305 Phone: 304-348-2212
Wisconsin	Mr. Orville L. Lovett, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison, WI 53713 Phone: 608-266-7138
Wyoming	Modified Agreement

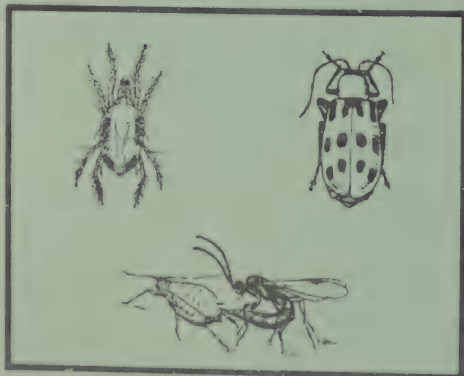
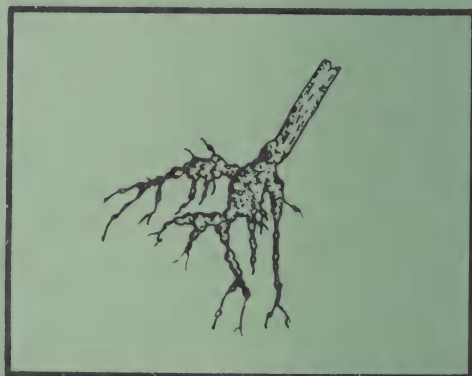
Revised January 21, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(1-4):32-34, 1977





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Cooperative PLANT PEST REPORT

"Purchased by United States
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for official use"



Animal
and Plant
Health
Inspection
Service

U. S.
DEPARTMENT
OF AGRICULTURE

This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Detection

A WEEVIL in NEVADA is a new State record. (p. 37).

A new host for GREEN PEACH APHID reported in Florida. (p. 37).

Special Reports

EUROPEAN CORN BORER fall populations decreased in 10 of 13 States. Populations increased in Minnesota and remained about the same in 2 States. (p. 41-48).

Reports in this issue are for the week ending January 28 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Aerial treatment applied to 10,000+ acres at Coalinga, Fresno County, to prevent CURLY TOP VIRUS. Adverse weather hampered operations. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot of small grains by county: in Archer, Hardeman, Jones, and Knox (January 17) 0-15; Archer, Baylor, Hardeman, Knox, Wichita, Young, and Fisher currently 0-3 in some fields. Mean maximum of 38 per row foot in Fisher County January 17 with 52 per row foot maximum in spots. (Boring).

SMALL GRAINS

INSECTS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light in many small grain fields in Hardeman County January 17. Currently light in some small grain fields in Jones, Knox, and Wichita Counties. (Boring).

DECIDUOUS FRUITS AND NUTS

INSECTS

ITALIAN PEAR SCALE (Epidiaspis leperii) - CALIFORNIA - Adults numerous per limb on apple, pear, and apricot trees at Aromas and Prunedale, Monterey County; treatment necessary. (CA Pest Rep.).

ORNAMENTALS

INSECTS

A WEEVIL (Scyphophorus yuccae) - NEVADA - Collected on Yucca sp. at Riverside, Clark County, May 13, 1970, by R.C. Bechtel and D.F. Zoller. Determined by R.C. Bechtel. This is a new State record. (Bechtel).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Adults infested leaves of 5 percent of 200 Mikania ternata (a plush vine plant) in nursery at Gibsonton, Hillsborough County. Collected by E.R. Simmons, January 17, 1977. This is a new host record for State. (FL Coop. Surv.).

OLEANDER SCALE (Aspidiotus nerii) - OREGON - Moderate to heavy on several thousand Pachysandra plants at Hillsboro area greenhouse, Washington County. Infested about 5-10 percent of stock plants and rooted cuttings. (Sjoblom).

FEDERAL AND STATE PROGRAMS

DISEASES

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - All work completed at a school site including removal and destruction of 140 elms in Marin County. Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytis multistriatus) to begin week ending February 4 in Napa County. (CA Pest Rep.).

INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Nymphs 1,000 per leaf on residential planting of orange at National City, San Diego County. (CA Pest Rep.).

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Infested properties (7) at San Jose, Santa Clara County, treated to eliminate larvae which may have emerged. All potential hosts, including pyracantha, treated. Survey nearly completed and reached 8,000+ properties in core area. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Treatment on schedule with major area, La Cresenta, Los Angeles County, in its fifth treatment. Fruit collecting will end January 31 as long as no additional flies found. (CA Pest Rep.).

SCREWWORM (Cochliomyia hominivorax) - Total of 38 cases reported from continental U.S. December 12-25, 1976, as follows: Texas 35, Arizona 3. Total of 272 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,505 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 192,711,000 as follows: Texas 185,061,000, Arizona 5,076,000, California 2,574,000. Total of 143,721,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW STATE RECORD

INSECTS

A WEEVIL (Scyphophorus yuccae) - NEVADA - Clark County. (p. 37).

CORRECTIONS

CPPR 1(48-52):864 - A WEEVIL (*Scyphophorus acupunctatus*) - Delete "Subsequent collection on *Yucca* sp. at Riverside, Clark County, by R.C. Bechtel and D.F. Zoller, May 13, 1970. "See A WEEVIL (*Scyphophorus yuccae*)," CPPR 2(5):37.

CPPR 2(1-4):10 - SCREWWORM (*Cochliomyia hominivorax*) - Total of 179,498,000 sterile flies released within Barrier ... should be ... Total of 43,929,000 sterile ...

CPPR 2(1-4):11 - To "Adult of a BRACONID WASP ... parasite of *Xyletinus peltatus* (an anobiid beetle)" add *X. peltatus* not known to occur in Hawaii.

CPPR 1(48-52):894 - *Aleurocanthus woglumi* - Change "on citrus fruit" to "on citrus leaves"

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Port of Entry</u>	<u>Probable Origin</u>	<u>Destination</u>
larval	in guavas from baggage	Boston	Portugal	USA
adult	in wood crates of glass	Savannah	Poland	USA
adult	in wood dunnage with circuit breakers	New York	France	NY
larval	in eggplants from baggage	Kennedy Airport	Africa	USA
larval	in cedar seed	Hoboken	Turkey	MA
adult	on dates from baggage	Dulles	Algeria	TX
adult	in wood cases of machinery	New York	West Germany	NY
adult	on peaches from cargo	San Francisco	New Zealand	CA
adult	in wood dunnage with aluminum	Savannah	Japan	USA

Cacoscimorpha pronubana (Hubner)
a tortricid moth

Hyllobius abietis (Linnaeus)
a curculionid weevil

Ips typographus (Linnaeus)
a scolytid beetle

Leucinodes orbonalis Guenee
a pyralid moth

Megastigmus schimitscheki Kowickey
a torymid wasp

Parlatoria blanchardi (Targ.)
a date scale

Pityogenes chalcographus (Linnaeus)
a scolytid beetle

Thrips obscuratus (Crawford)
a thrips

Xyleborus validus Eichhoff
a scolytid beetle

Status of the European Corn Borer in 1976^{1/}

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hübner)) in the fall of 1976 were conducted by cooperating agencies in 14 States. All survey data, summaries, and records of field observations were processed by the New Pest Detection and Survey Staff in Hyattsville, Maryland.

The 1976 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some differences in compiling data, the accepted survey methods were followed in all cases. The survey was conducted on a district basis wherever possible in 1976. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time in one county in Florida.

Abundance: European corn borer fall populations greatly decreased in 10 of the 13 States surveyed in 1975 and 1976. Populations increased in one State and were similar for both years in two States.

The fall European corn borer population in Illinois decreased 59 percent from the 1975 State average. Larvae averaged 34 per 100 plants on 22 percent of the plants in 1976. Infestations were heaviest in the northwest and west districts. Of the 40 counties surveyed, one county, Henderson, in the west district had the heaviest average of 100 larvae per 100 plants. In Iowa, over 100 European corn borers per 100 stalks were present in all except 4 of the 12 districts.

The State average in Missouri, a decrease from the 1975 average, was 107 larvae per 100 plants on 62 percent of the plants.

Fall European corn borer populations decreased 41 percent in Kansas. Populations were heaviest, 89 per 100 stalks, in the north-east district. Averages in 1976 were higher than in 1975 for the larval population in the central and south-central districts and for the percent of infested stalks in the south-central district. Fall populations decreased 62 percent in Nebraska. Infestations were heaviest in the east and central districts with 322 larvae per 100 plants on 81 percent of the plants in the east district and 214 larvae per 100 plants on 71 percent of the plants in the central district.

^{1/} Survey data provided by State agricultural agencies. Data compiled and summarized by New Pest Detection and Survey Staff, Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service, United States Department of Agriculture.

The State average in Minnesota increased 73 percent from 37 in 1975 to 64 larvae per 100 plants in 1976. Only the south-central district had over 100 larvae per 100 plants. Increases occurred in the central, southwest, south-central, and southeast districts. The State average for Wisconsin, 23 per 100 plants, was well below the 30-year average of 45 per 100 plants.

In Delaware, the State average decreased 78 percent from the 1975 average to 85 larvae per 100 plants. Statewide, infested plants averaged 40 percent.

Table 1. Summary by States of European Corn Borer Abundance
in Corn, Fall of 1976, Compared with Data for 1975

States	1975			1976			Comparable Districts or Counties		
	:Average No.:			:Average No.:			:Surveyed Both Years		
	:No. of	:No. of	:No. of	:No. of	:No. of	:No. of	:Borers Per 100 plants	:Borers Per 100 plants	1976
	:Districts	:Counties	:Districts	:Counties	:Counties	:Counties	:Surveyed	:Surveyed	
	:Surveyed	:Surveyed	:Surveyed	:Surveyed	:Surveyed	:Surveyed	:Number:	:Number:	
Eastern									
Delaware	1	389	3	1	85	3	1	389	85
Maryland	1	-	-	3	46	13	-	-	46
Total	1		3	4		16			
Average 2								389	66
North Central									
Illinois	8	83	32	9	34	40	8	83	34
Indiana	12	34	92	12	37	92	12	34	37
Iowa	12	144	99	12	122	99	12	144	122
Kansas	9	59	60	9	34	58	9	58	34
Michigan	5	103	20	5	57	20	5	98	60
Minnesota	7	37	34	7	64	34	7	37	64
Missouri	8	146	40	8	107	39	8	148	112
Nebraska	5	461	25	5	175	25	5	461	175
North Dakota	1	34	5	1	25	5	1	34	25
Ohio	5	57	33	5	27	33	5	57	27
South Dakota	5	75	32	2	67	19	2	127	67
Wisconsin	9	22	54	9	23	54	9	22	23
Total	86		526	84		518			
Average 2								109	65
Southern									
Kentucky	3	5	40	19	-	-	-	-	-

1/ No survey conducted in 1975.
2/ Weighted averages based on districts surveyed.
3/ No survey conducted in 1976.

Table 2 - European Corn Borer Abundance in Corn
Fall of 1976, Compared with Data for 1975

State (Districts or Counties)	Average Number of Borers Per 100 Plants		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1975	1976		1975	1976
Delaware (Agric. Exp. Stn.)			Iowa (State Dep. Agric.; Ext. Serv.; Entomol. Dep. Iowa State Univ.; PESS, ARS, USDA)		
New Castle	157	75	District I	191	156
Kent	451	101	District II	61	139
Sussex	560	80	District III	40	71
Average	389	85	District IV	356	195
Illinois (Nat. Hist. Surv., Ext. Serv.)			District V	121	86
Northwest	184	67	District VI	64	130
Northeast	63	11	District VII	343	191
West	85	73	District VIII	68	102
Central	18	11	District IX	225	118
East	21	12	District X	102	85
West-southwest	80	23	District XI	59	90
East-southeast	55	32	District XII	97	105
Southwest	155	36	Average	144	122
Southeast	-	42	Kansas (Insect Surv.)		
Average 1	83	34	Northeast	165	89
Indiana (Ext. Serv. Exp. Stn.)			North Central	78	64
North-northwest	32	25	East Central	68	61
North-northcentral	58	57	Central	6	22
North-northeast	54	71	Southeast	105	17
Northwest	15	23	South Central	40	46
North Central	27	19	Northwest	31	5
Northeast	22	21	West Central	13	2
Southwest	37	26	Southwest	23	4
South Central	4	32	Average	59	34
Southeast	13	10	Kentucky (Insect Surv.)		
South-southwest	71	71	District I	28	
South-southcentral	30	72	District II	31	
South-southeast	31	26	District III	30	
Average 2	34	37	District V	32	
			District VI	77	
			Average	40	3

¹ Based on comparable counties surveyed in 1974 and 1975.

² Based on 189 fields surveyed.

³ No report

Table 2 (Continued)

State (Districts or Counties)	Average Number of Borers Per 100 Plants		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1975	1976		1975	1976
Maryland (Agric. Ext. Serv.: Insect Surv.)			Nebraska (Agric. Exp. Stn.: Ext. Serv., Insect Surv.)		
Eastern Shore		104			
Southern area		42	Northeast	743	185
Central and Western area		8	East	631	322
Average	4	46 5	Southeast	225	74
			Central	431	214
			South	274	79
Michigan (Insect Surv.)			Average	461	175
District 1	109	37	North Dakota (State Dep. Agric.)		
District 2	109	117			
District 3	111	72	Southeast 7	34	25
District 4	96	15			
District 5	92	44	Ohio (Ext. Serv.; ARS, USDA)		
Average 6	103	57			
Minnesota (State Dep. Agric.)			Northwestern	87	33
Northwest	18	9	West-central	46	21
West Central	60	20	Central	40	30
Central	46	92	Southwestern	30	22
East Central	31	30	Northeastern	59	39
Southwest	40	67	Average	57	27
South Central	45	151	South Dakota (Agric. Exp. Stn., Ext. Serv.)		
Southeast	19	68			
Average 6	37	64	North Central	35	-
Missouri (Ext. Serv., Insect Surv.)			Northeast	52	-
District I	194	125	Central	32	-
District II	147	72	East Central	75	42
District III	187	95	Southeast	179	91
District IV	94	72	South Central	8	-
District V	107	90	Average	75	67 9
District VI	179	141			
District VII	74	54			
District IX	188	204			
Average	146	107			

4/ No report

5/ Based on number of counties surveyed.

6/ Based on number of fields surveyed.

7/ Based on number of fields surveyed.

8/ No report.

9/ Other districts not surveyed due to drought.

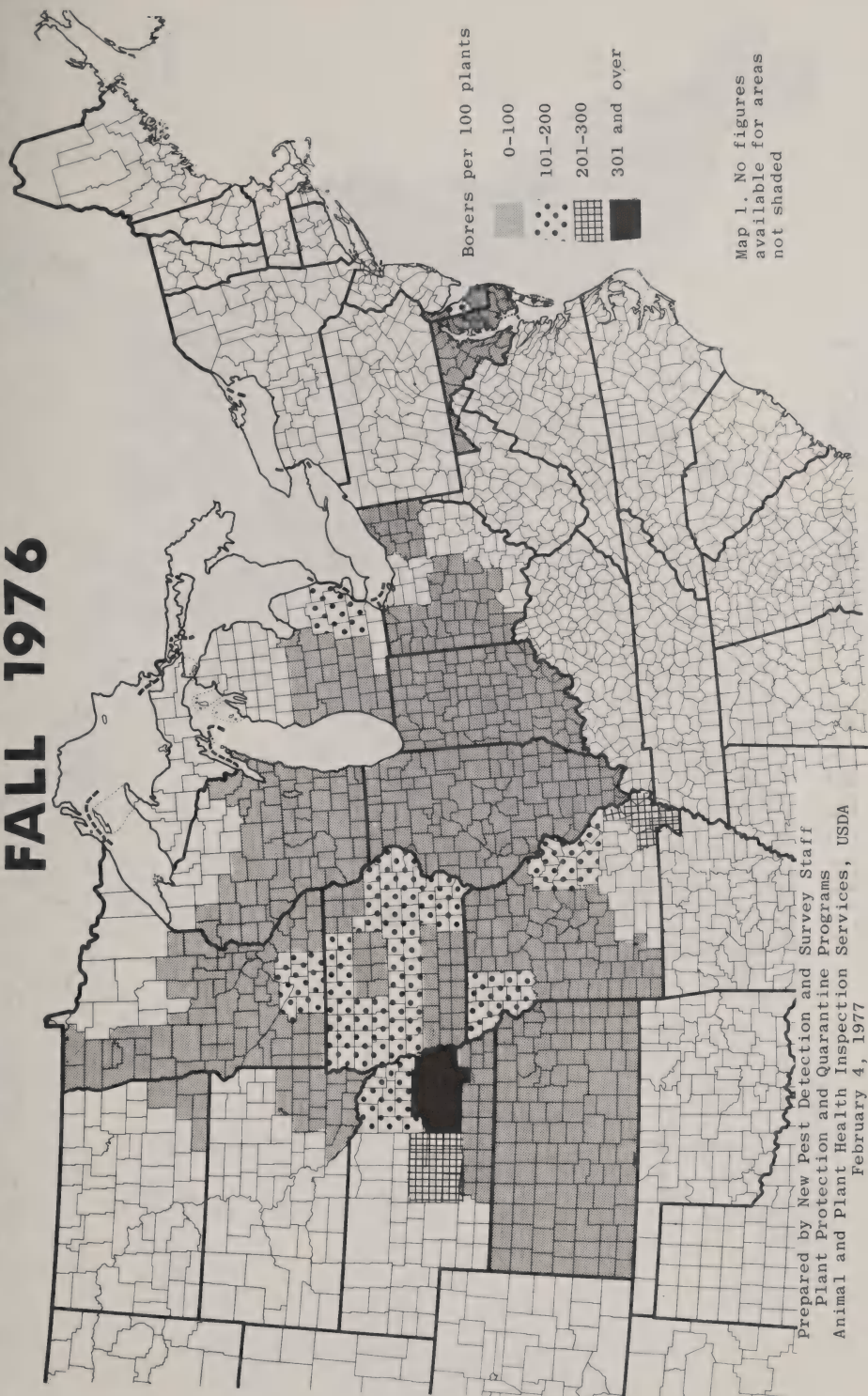
Table 2 (Continued)

State Districts or Counties	Average Number of Borers Per 100 Plants	
	1975	1976
Wisconsin (State Dep. Agric.)		
Northwest	45	17
North Central	23	10
West Central	17	28
Central	18	9
Southwest	19	46
South Central	13	30
Southeast	44	12
East Central	20	9
Northeast	<u>31</u>	<u>4</u>
Average	22 <u>10</u> / ₁₀	23 <u>11</u> / ₁₁

10/₁₀ Based on 228 dent corn fields surveyed.

11/₁₁ Based on 226 fields surveyed.

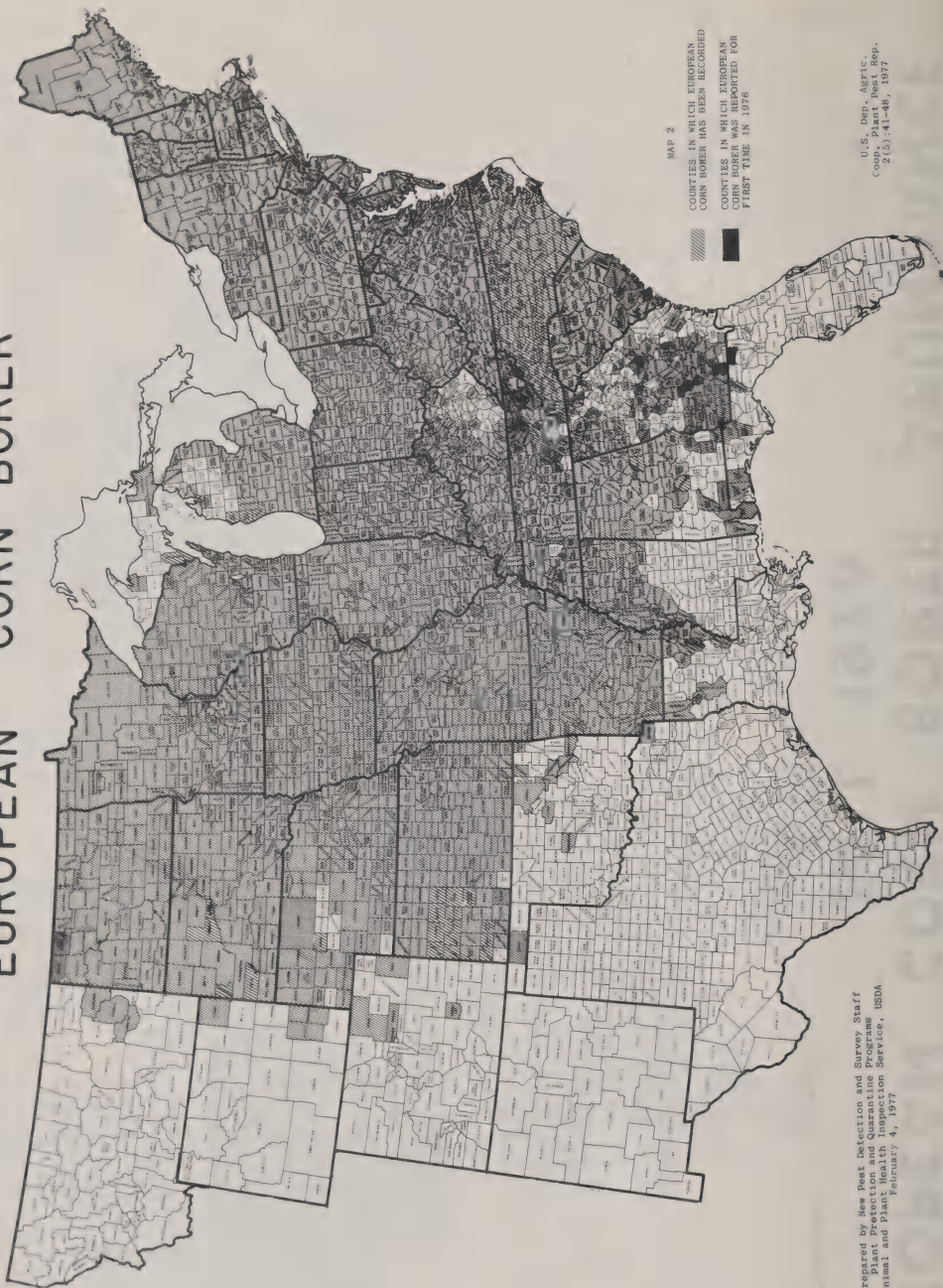
EUROPEAN CORN BORER ABUNDANCE FALL 1976



Map 1. No figures available for areas not shaded

Prepared by New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Services, USDA
February 4, 1977

EUROPEAN CORN BORER



Prepared by New Pest Detection and Survey Staff
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U.S. Dep. Agric.
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Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG very heavy in 2 wheat fields in southwest Oklahoma. (p. 51).

BACTERIAL PHLOEM CANKER increased on 10-15 percent of walnut trees in area of California. (p. 51).

Detection

● MEDITERRANEAN FRUIT FLY detected in Mexico, just north of the Guatemala border. (p. 54).

New State records include CEREAL LEAF BEETLE in New Hampshire and a LEAFHOPPER in Hawaii (p. 53).

For new county and island records, see page 54.

Special Reports

Distribution of Pear Psylla (map). (p. 55).

Reports in this issue are for the week ending February 4 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Occasional small larva (0.25 inch long or less) in several wheat fields in Caddo County week ending January 28. Three larvae (0.25-0.5 inch long) in one field in Payne County. Current counts per 20 row feet by county: Logan averaged one in one wheat field, Kingfisher 1-5 in 3 of 4 fields, Washita and Caddo occasional larva. (OK Coop. Surv.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment continued at Los Gatos, Zapatos, and Jacalitos Canyons, Fresno County. Fog and mechanical problems slowed treatment. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - TEXAS - Counts per row foot in scattered small grain fields by county week of January 31: Archer, Baylor, Jones, Wichita, and Young 1-5; Fisher 1-27 and up to 62 in spots in separate counts. (Jackman). OKLAHOMA - Counts per row foot by county week ending January 28: Caddo 0-3 in most wheat, averaged 10 in one ungrazed field; Payne averaged less than one. Current counts per row foot of wheat by county: Jackson, Greer, Harmon, Kiowa, and Tillman 0-15 in most fields checked, up to 115 in 2 early planted, fully tillered fields in Jackson County; Washita and Caddo 0-2 in most fields, up to 15 in occasional fields, Garfield averaged one, and Noble 0.5. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 0-10 per row foot of wheat in southwest counties. Averaged one per row foot in one field in Kingfisher County. (OK Coop. Surv.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 1-3 per row foot in one of 4 fields in Kingfisher County and 2 of 3 fields in Garfield County. (OK Coop Surv.).

DECIDUOUS FRUITS AND NUTS

DISEASES

BACTERIAL PHLOEM CANKER (Erwinia rubrifaciens) - CALIFORNIA - Many cankers on walnut trees at Visalia, Farmersville area, Tulare County, week ending January 28. Due to late summer rains, disease incidence increased on 10-15 percent of the trees. (CA Pest Rep.).

SMALL FRUITS

INSECTS

GRAPE ROOT BORER (Vitacea polistiformis) - OKLAHOMA - Full-grown larvae heavy in roots of grape planting at Oklahoma City, Oklahoma County, week ending January 28. (OK Coop. Surv.).

ORNAMENTALS

INSECTS

JUNIPER WEBWORM (Dichomeris marginella) - CALIFORNIA - Larvae 3-5 per stem on Juniperus spp. at Garberville, Humboldt County, only known infestation in State. (CA Pest Rep.).

AN ARMORED SCALE (Andaspis hawaiiensis) - FLORIDA - Adults severely infested stems and leaves of Malpighia glabra (Barbados cherry) in nursery at Hialeah, Dade County. Collected by M.J. Corman. Determined by A.B. Hamon. This is a new county record. (FL Coop. Surv.).

A LEAFMINER FLY (Phytomyza vomitoria) - FLORIDA - Larvae heavily infested all 1,000 nursery plants of Ilex vomitoria (yaupon) at Highpoint, Pinellas County, January 28. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Collected from honeylocust and mimosa at Oxford, Sumner County, August 24, 1976. Collected and determined by K.O. Bell. This is a new county record. (Bell).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Averaged 5 per head in beef herd of 35 animals at Williston, Levy County, January 28. (FL Coop. Surv.). OKLAHOMA - Ranged 0-38 (averaged 4.9) per head on dairy cattle in Payne County. Heavy in Craig County. (OK Coop. Surv.).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - FLORIDA - Nymphs and adults heavily infested beef herd of 35 animals at Williston, Levy County, January 28. (FL Coop. Surv.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - ARKANSAS - Moderate on cattle in most areas; controls applied. (Jones).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN ENCYRTID WASP (Ooencyrtus chrysopae) - FLORIDA - Five adults reared from Chrysopa sp. (a green lacewing) eggs collected at Perrine, Dade County, December 28, 1976, by R.B. Schimmel. Determined by E.E. Grissell. Adult encyrtids emerged January 6, 1977. This is a new county record. (FL Coop. Surv.).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Collected from puncturevine near Plevna, Reno County, and near Alden, Rice County, October 1, 1976. Collected and determined by E.F. Martinez. These are new county records. (Bell).

FEDERAL AND STATE PROGRAMS

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW HAMPSHIRE - Two larvae collected from oat field at Concord, Merrimack County, by C.S. Tatham, July 11, 1976. Determined by R.E. White. This is a new State record. (PPQ).

SCREWORM (Cochliomyia hominivorax) - Total of 2 cases reported from continental U.S. December 26, 1976, to January 15, 1977, as follows: Texas 2. Total of 230 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,910 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 309,208,600, all in Texas. Total of 292,229,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Adults infested 3 properties at San Jose, Santa Clara County. Treatment on south campus of State university at San Jose completed and in area of Sonoma, Sonoma County, 78 percent completed. No infestations found at Sonoma. (CA Pest Rep.).

WEEDS

DUDAIM MELON (Cucumis melo var. dudaim) - CALIFORNIA - Of 3,206 gross acres involved in melon eradication project in Imperial Valley, 1,216 acres released as free of the pest for past 3 years. Eradication continued on remaining acreage and anticipated to be completed by 1982. (CA Pest Rep.).

HAWAII PEST REPORT

New State Record - Single adult female of a LEAFHOPPER (Spangbergiella quadripunctata) first collected at Kalihi, Oahu, by C. Arakaki, November 16, 1976. Two more adults collected from light trap at Honolulu Harbor and at large at Manoa. Determined by J.P. Kramer. This is a new State record. (Beardsley et al.).

Fruits and Nuts - A WHITEFLY (Paraleyrodes naranjae) light on citrus tree at Ke alakekua, Hawaii Island. Collected by E. Yoshioka and L. Nakahara, January 26, 1977. Determined by S. Higa. This is a new island record. Another infestation later noted at Kurtistown, shows this species to be well established on island. (Shishido et al.).

Man and Animals - Heavy swarms of a SAP BEETLE (Carpophilus humeralis) and DRIEDFRUIT BEETLE (C. hemipterus) at Lanai City, Lanai, January 17-18 caused many nuisance problems. (Jackson et al.). Adults of a LYGAID BUG (Cligenes marianensis) heavy on students and causing nuisance problems in school at Kapaa, Kauai, January 10, 1977. Collected by W. Sonoda. Determined by S. Higa. This is a new island record. (L. Nakahara).

Snail Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity triggered by winter rains during January in all infestation sites on Kauai. Another infestation discovered at Ahukini, Kauai, in mid-January. Snails ranged from young juveniles to adults 4 inches long in 3 to 4-acre area. (Sugawa).

DETECTION

INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Two females trapped at Talisman, State of Chiapas, just north of Guatemala border, February 1 and 3, 1977. First record of spread into Mexico from Central America. All necessary measures undertaken by Mexico and U.S. Dooryard citrus and coffee (now harvested and locally processed) only significant hosts in area. Susceptible commodities not allowed out of area. Regulated area involves 12 square miles. (PPQ).

NEW STATE RECORDS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW HAMPSHIRE - Merrimack County. (p. 53).

A LEAFHOPPER (Spangbergiella quadripunctata) - HAWAII - Oahu Island. (p. 53).

NEW COUNTY AND ISLAND RECORDS

INSECTS

AN ARMORED SCALE (Andaspis hawaiiensis) - FLORIDA - Dade (p. 52).

AN ENCYRTID WASP (Ooencyrtus chrysopae) - FLORIDA - Dade (p. 52).

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Sumner (p. 52).

A LYGAEID BUG (Cligenes marianensis) - HAWAII - Kauai (p. 53).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - KANSAS - Reno (p. 52).

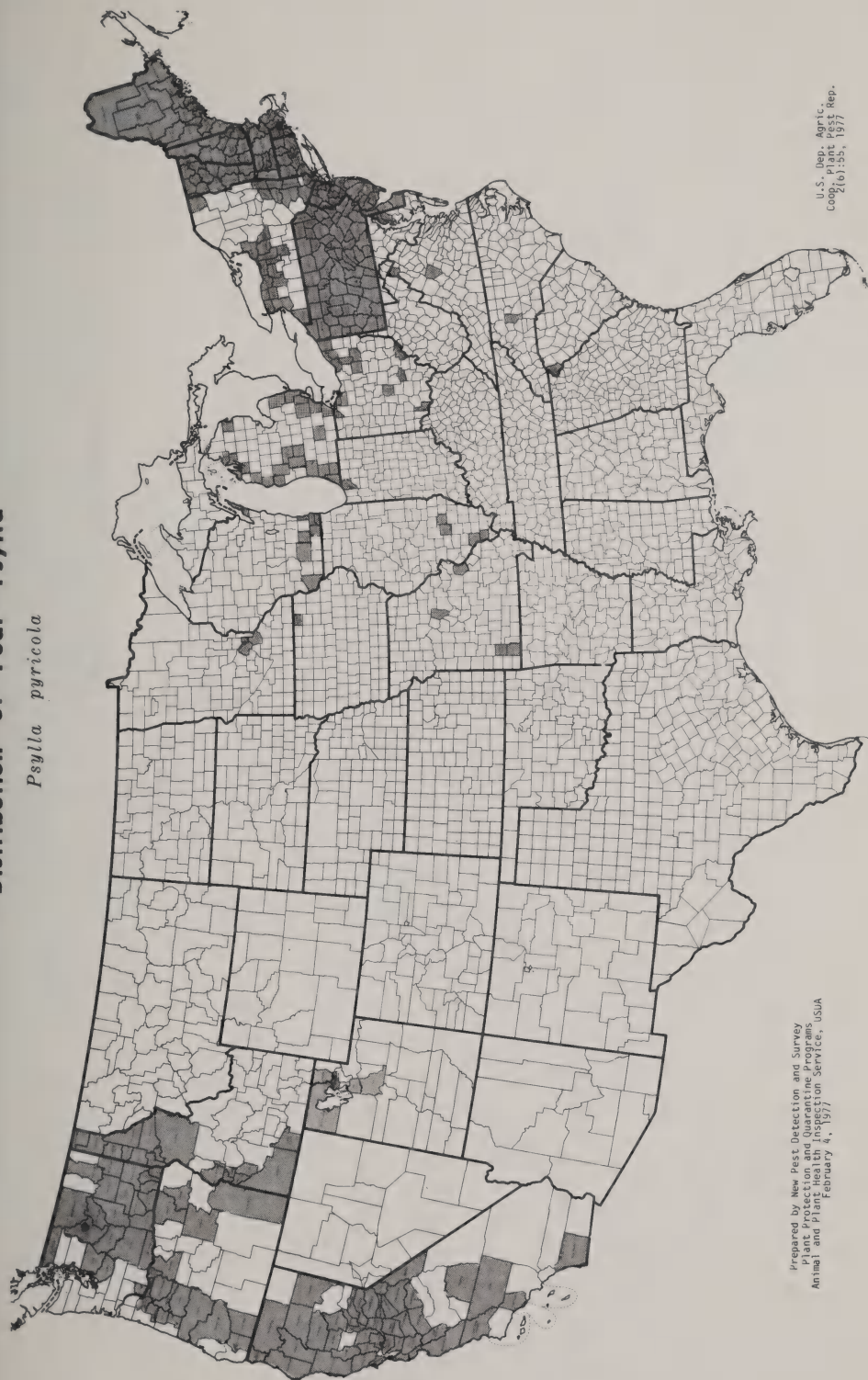
A WHITEFLY (Paraleyrodes naranjae) - HAWAII - Hawaii (p. 53).

CORRECTIONS

CPPR 2(5):38 - SMALLER EUROPEAN ELM BARK BEETLE (Scolytis multistriatus) should read SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus).

Distribution of Pear Psylla

Psylla pyricola

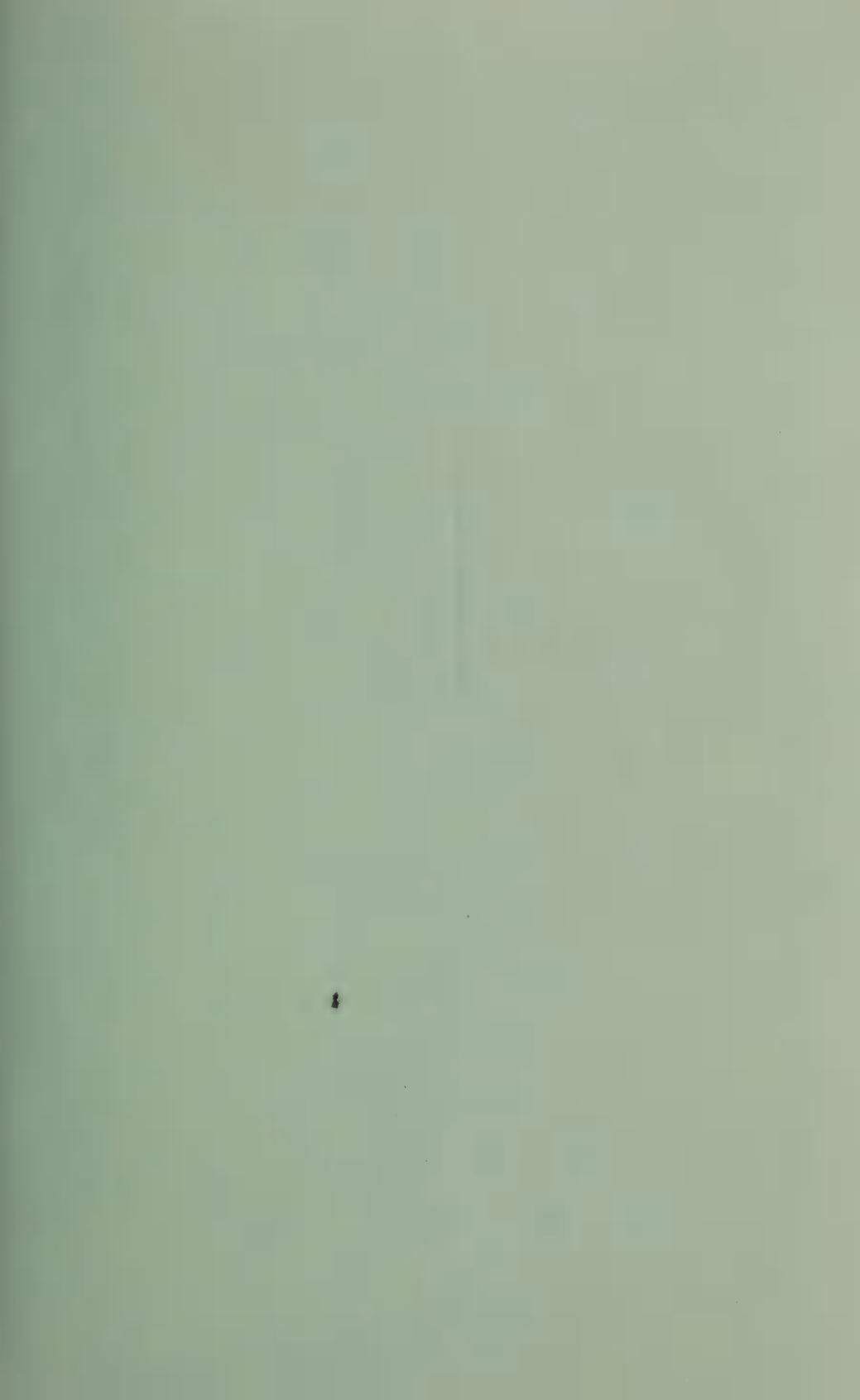


Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 4, 1977

U.S. Dep. Agric.
Forest and Pest Control
GPO: 1977 O-315-167

Pest Interceptions of Quarantine Significance at Ports of Entry
 Plant Importation and Technical Support Staff
 Plant Protection and Quarantine Programs, USDA

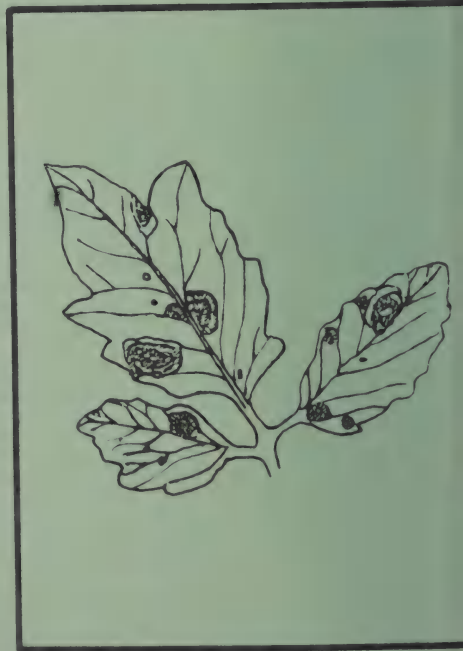
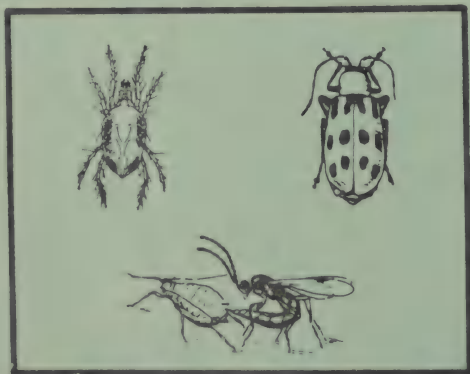
	Life Stage	Host	Port of Entry	Probable Origin	Desti- nation
<u>Thecaphora solani</u> Barrus a fungus	imperfect	on potatoes from baggage	El Paso	Mexico	CA
<u>Uromyces vicia fabae</u> (Pers.) Schroet. a rust	uredial	on lentil debris from stores	Mobile	Chile	--
<u>Cryptorhynchus mangiferae</u> (Fabricius) mango weevil	adult	in mangoes from baggage	Honolulu	Hawaii	CA
<u>Curculio nucum</u> Linnaeus a weevil	larval	in filberts from mail	Hoboken	USSR	MT
<u>Sipalinius gigas</u> (Fabricius) a weevil	larval	in wood dunnage	San Francisco	Japan	CA
<u>Dichrocrocis punctiferalis</u> (Guenee) a pyralid moth	larval	in chestnuts from baggage	Honolulu	Korea	USA
<u>Hylurgops palliatus</u> (Gyllenhal) a scolytid beetle	adult, larval	in wood dunnage	Charleston	Europe	USA
<u>Laspeyresia fagiglandina</u> (Zeller) an olethreutid moth	larval	in beech seed from cargo	Seattle	Italy	WA





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Cooperative **PLANT PEST REPORT**

*"Purchased by United States
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**Animal
and Plant
Health
Inspection
Service**

**U.S.
DEPARTMENT
OF AGRICULTURE**



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Detection

A PSOROPTID MITE is new in Florida. (p. 62).

For new county records, see page 63.

Special Reports

Gypsy moth traps placed in 1976. (p. 60-61).

Some First Occurrences of the Season

BROWN WHEAT MITE eggs in New Mexico.

FILBERT BUD MITE eggs in Oregon.

SOUTHERN PINE BEETLE adults in Mississippi.

HONEY BEE in Oklahoma.

Reports in this issue are for the week ending February 11 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Very light on wheat in Washita, Cotton, and Stephens Counties and on oats in Love County. (OK Coop. Surv.). KANSAS - Trace (0.1 per square foot) in one wheat field (3 inches, 7 tillers) in Kingman County near Waterloo. Larvae less than 0.25-0.38 inch; feeding restricted to epidermis of leaves. Larvae (up to 0.5 inch) averaged 0.2 per square foot of alfalfa (one inch) in Harper County field. (Bell).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Fog forced suspension of treatment in Fresno County. Treatment in Imperial Valley, Imperial and Riverside Counties postponed until February 10. Some adults contained as many as 9 eggs. Continual population monitoring necessary for proper timing; start-up time will depend upon weather and maturity. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Counts per row foot of wheat by county: Washita 0-10; Stephens 0-6; Kiowa, Cotton, Comanche, Jefferson, Love, and Ray 0-2; Love averaged 5 in oat field. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 0-3 per row foot of wheat in Washita, Comanche, Jefferson, and Stephens Counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Young colonies moderate on young wheat in Chaves, Lea, and Roosevelt Counties. One or more egg laying adults on one plant in ten. (NM Coop. Rep.). KANSAS - Averaged 2 per plant on wheat (3 inches, 4 tillers) in Barber County field. (Bell).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - KANSAS - Adults averaged 0.2 per square foot of one-inch alfalfa in Harper County near Danville. (Bell).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Light to moderate on alfalfa stubble in San Joaquin Valley, Kern County. Treatment necessary before first cutting. Dry winter conditions apparently aided higher than normal survival rate. (CA Pest Rep.).

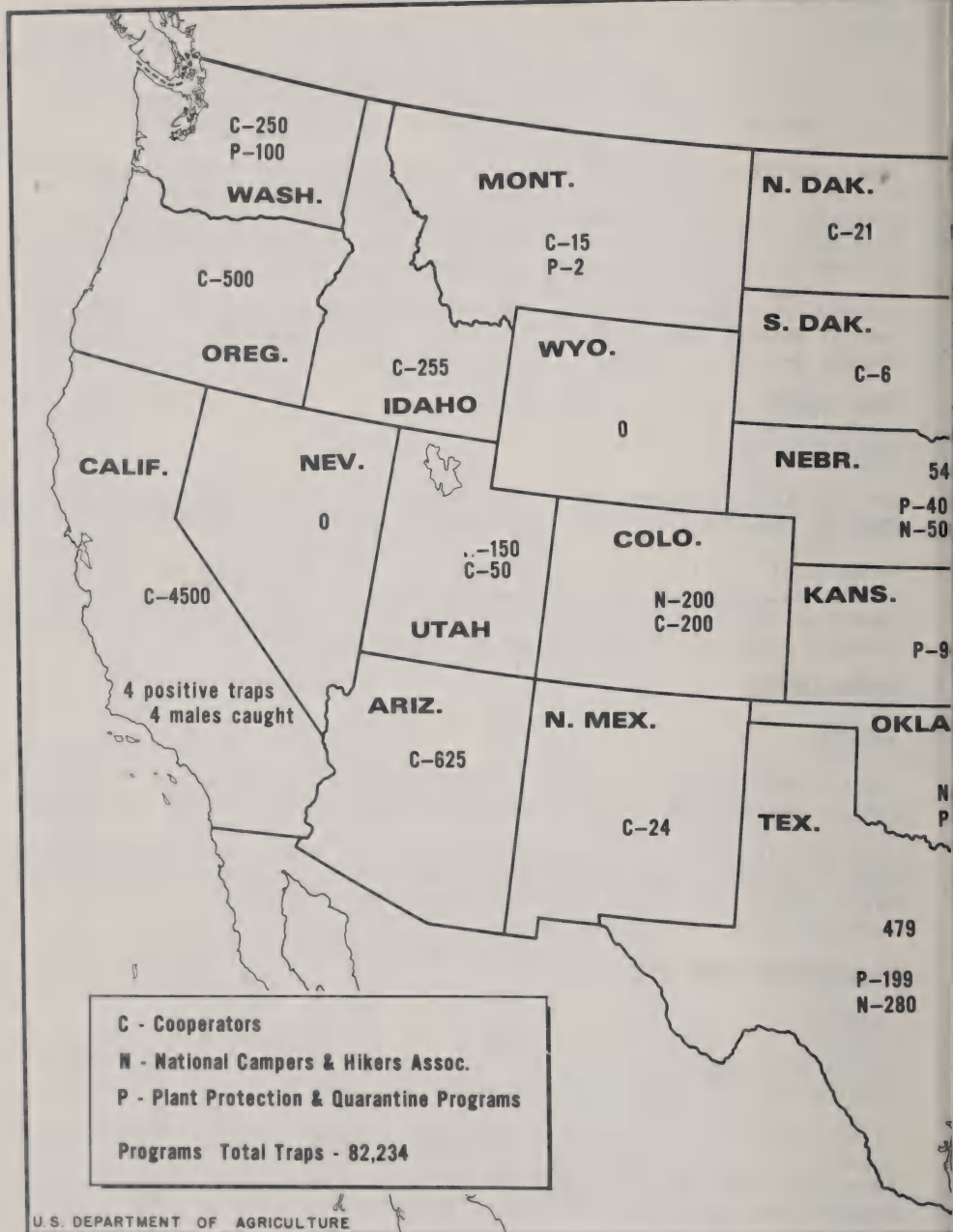
DECIDUOUS FRUITS AND NUTS

INSECTS

GREEDY SCALE (Hemiberlesia rapax) - CALIFORNIA - Nymphs and adults heavy on limbs of pear at Aromas, Monterey County. (CA Pest Rep.).

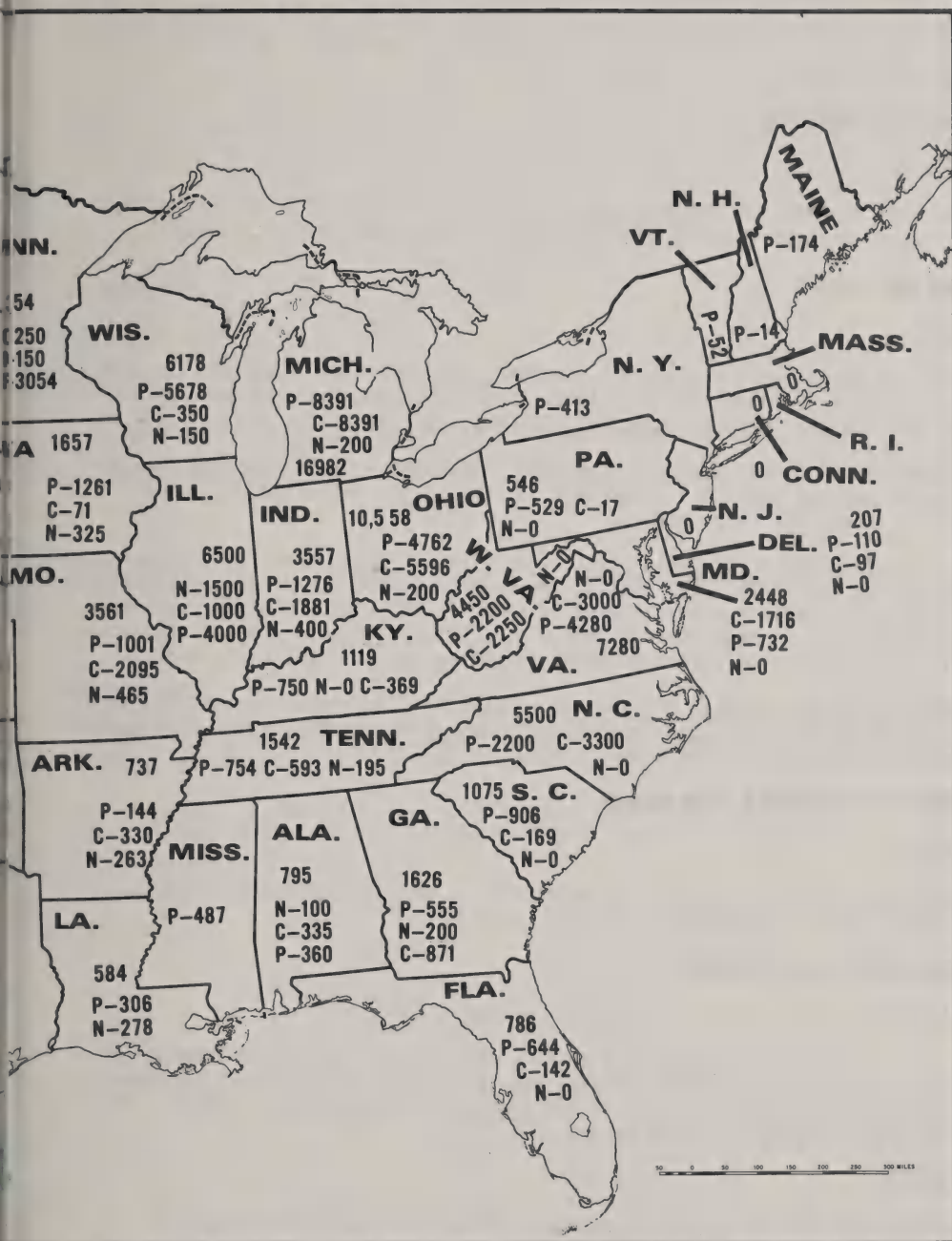
FILBERT BUD MITE (Phytocoptella avellanae) - OREGON - Light in buds of several hundred hilled-in filbert trees in nursery at Dundee, Yamhill County, February 4. Buds swelling and mites laying eggs. Heavy populations of Kampimodromus aberrans (a phytoseiid mite) present. (Long, Larsen).

GYPSY MOTH TR



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 16, 1976

PLACED IN 1976



ORNAMENTALS

INSECTS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Adults heavily infested all 5,000 miniature carnation plants of Dianthus sp. in nursery at Starke, Bradford County. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - First adults active on pheromone sticky traps in Wayne County pine forest. (Gammill).

MAN AND ANIMALS

INSECTS

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 2 per head on 5 untreated beef animals near Gainesville, Alachua County, slight increase over last period; sharper increase expected. (FL Coop. Surv.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Grubs averaged 2.85 per head in herd of 82, and 3.7 per head in herd of 103 untreated beef cows in Payne County. (OK Coop. Surv.).

A PSOROPTID MITE (Choriopetes bovis) - FLORIDA - One of stress factors in death of calf at Williston, Levy County, December 18, 1976. Calf from native herd of 3 cows and 3 calves; other 2 calves died early in autumn from same symptoms. Collected by F.C. Neal. Determined by J.F. Butler. This is a new State record. This herd near other purchased herds of unknown origin. (FL Coop. Surv.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate on cattle in some areas of Payne County. Cattle infested since early December 1976; tick numbers beginning to decline. (OK Coop. Surv.).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

HONEY BEE (Apis mellifera) - OKLAHOMA - First activity of season in Payne, Wagoner, and Love Counties. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

DISEASES

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - Burning of debris continued at one home in Marin County. Wet logs slowed destruction. Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) underway at Napa, Napa County. (CA Pest Rep.).

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Larvae collected at Appomattox, Appomattox County, and Dillwyn, Buckingham County, by W.D. Jones May 20, 1976. Determined by R.E. White. All are new county records. (PPQ).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Traps removed from deciduous trees with fallen leaves. Traps will be moved back to blooming peach trees. Treatment continued with largest area, Inglewood, Los Angeles County, in seventh treatment. (CA Pest Rep.).

SCREWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. January 16-29. Total of 96 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,252 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 215,821,000, all in Texas. Total of 238,310,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW STATE RECORD

INSECTS

A PSOROPTID MITE (Chorioptes bovis) - FLORIDA - Levy County. (p. 62).

NEW COUNTY RECORDS

INSECTS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Appomattox, Buckingham, Halifax (p. 62).

CORRECTIONS

CPPR 2(1-4):5,13 - AN ARMORED SCALE (Lecanodiaspis prosopidis) should read A LECANODIASPID SCALE This note is on page 5.

CPPR 2(1-4):6 - A WHITEFLY (Aleurodicus dispersus) - Leon County Collected by F.G. Barker should read Dade County H.G. Barker (FL Coop. Surv.).

Pest Interceptions of Quarantine Significance at Ports of Entry

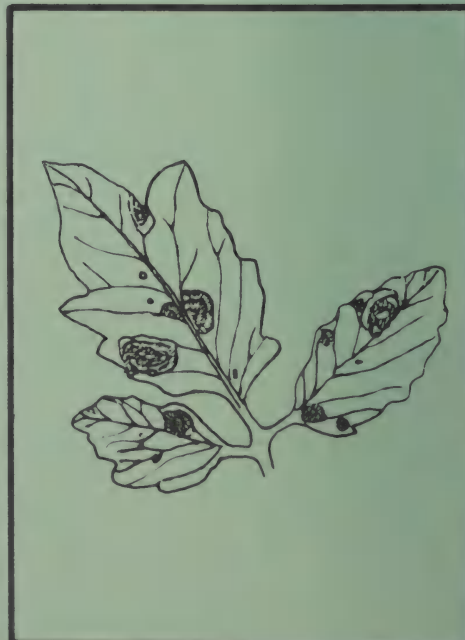
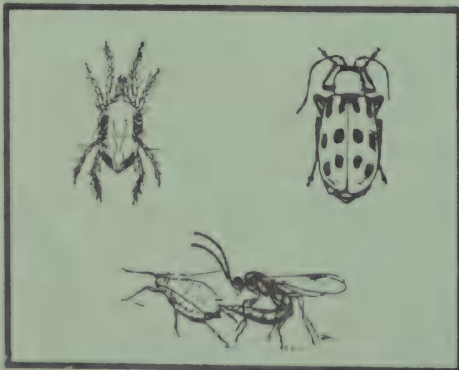
Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Puccinia tillandsiae</u> Cumm. and Pollack a rust Det. H.L. Rubin	uredial	on bromeliad leaves	Jamaica	Miami	FL
<u>Uredo anthurii</u> (Harriot) Sacc. a rust Det. H.L. Rubin	uredial	on <u>Anthurium</u> leaves	Costa Rica	Miami	NY
<u>Aphthona euphorbiae</u> (Schrank) a chrysomelid beetle Det. R.E. White	adult	with lilac cut flowers	Netherlands	Boston	MA
<u>Ceratitis capitata</u> (Wiedemann) Mediterranean fruit fly Det. R.P. Higgins	larval	in plums from baggage	Argentina	Miami	FL
<u>Lampides boeticus</u> (Linnaeus) a lycaenid beetle Det. R. Kunishi	larval	in Sesbania cut flowers from baggage	Hawaii	Honolulu	CA
<u>Shirahoshizo</u> sp. a weevil Det. D.M. Anderson	larval	in wood dunnage	Japan	Baltimore	MD
<u>Trogoderma granarium</u> Everts khapra beetle Det. R.F. Bollinger	larval	with bales of cotton piece goods	Pakistan	Charleston	SC
<u>Cochlicella barbara</u> (Linnaeus) a helicid snail Det. R.D. Munkittrick	adult	on dried flowers from cargo	Spain	San Francisco	CA



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VOL. 2 NO. 8

Sp. Styrsky
February 25, 1977

Cooperative **PLANT PEST REPORT**

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**Animal
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**U.S.
DEPARTMENT
OF AGRICULTURE**



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Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG yellowing some wheat in east-central New Mexico. Very severe counts found in another southwest county of OKLAHOMA. (p. 67).

Detection

New State records include SPIKEWEED (p. 69) and TEXAS BLUEWEED (p. 70) in Idaho and 4 ANTS in Utah (p. 71).

For new county records see pages 71-72.

New host records were reported for a NYMPHALID BUTTERFLY and a WHITEFLY in Hawaii. (p. 70).

Special Reports

The Genus Rhopalosiphoninus Baker (Homoptera: Aphididae) in North America. (p. 75-80).

Distribution of Brown Wheat Mite (map). (p. 74).

Some First Occurrences of the Season

EASTERN TENT CATERPILLAR in Florida. Male moths of SPRING CANKERWORM in Kansas.

Reports in this issue are for the week ending February 18 unless otherwise indicated.

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in North America.....	75

SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Late third and early fourth instar larvae light on wheat in Payne County. (OK Coop. Surv.).

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment continued although weather hampered operations in Fresno County. Control operations terminated because of impending egg laying. Over 4,000 acres treated last period. Control begun in Imperial Valley, Imperial County. (CA Pest Rep.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Up to 20-30 per wheat plant in Roosevelt County. Plants showed moderate stress and some yellowing. (NM Coop. Rep.). TEXAS - Counts per row foot of small grains by date and county: February 7--Archer, Baylor, Fisher, Hardeman, Wichita, Wilbarger, and Young 0-8; and February 14--Baylor, Fisher, Hardeman, Wichita, and Young 2-4 aphids, Hardeman 0.6-3.0 parasitized aphids. (Boring). OKLAHOMA - Ranged 10-600 per row foot in several wheat fields at Dill City and Burns Flat, Washita County, increased sharply in past period. Light in Payne County and very light in Pawnee County. Continued light in Jackson, Tillman, Kiowa, Harmon, and Greer Counties; 0-15 per row foot in most fields and up to 25 per row foot in occasional fields. (OK Coop. Surv.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Very light, 0.5 per square foot, on alfalfa in Muskogee County. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - TEXAS - Ranged 0.2-3.0 per row foot of small grains in Wichita County. (Boring).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Heavy, 30 (averaged 10-15) per 2 to 3-inch wheat plant near Ulysses, Grant County, and Tribune, Greeley County. Some damage and treatment. (Bell).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light to moderate on wheat in Major County and light in Kay County. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg averages per square foot of alfalfa by county: Grady 25 and Wagoner 12.4. Adults light in Tillman County. (OK Coop. Surv.).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Nymphs and adults averaged 5 per stem in 100-acre alfalfa field at Tracy, San Joaquin County. Stem mothers averaged 1-2 per stem. Up to 20 individuals per stem, mostly nymphs. (CA Pest Rep.).

DISEASES

PECAN DOWNY SPOT (Mycosphaerella caryigena) - GEORGIA - Strain on pecan tolerant to a carbamate collected from Tift County near Tifton by R. Worley October 15, 1976. Tolerance determined by W. Goff and R.W. Miller. (Miller).

INSECTS

A LECANODIASPID SCALE (Lecanodiaspis prosopidis) - ALABAMA - Collected on ornamental Diospyros sp. (persimmon) at Eufaula, Barbour County, by T. Lemons, October 1, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

SMALL FRUITS

INSECTS

AN ARMORED SCALE (Abgrallaspis cyanophylli) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at Eufaula, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at White Oak Creek, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

TERRAPIN SCALE (Lecanium nigrofasciatum) - ALABAMA - Collected on ornamental Vaccinium sp. (blueberry) at Eufaula, Barbour County, by C.H. Ray, March 23, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

ORNAMENTALS

INSECTS

A MEALYBUG (Pseudococcus sorghiellus) - ALABAMA - Collected on Solidago sp. (goldenrod) at Eufaula, Barbour County, by B.J. Muse, June 11, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AN ARMORED SCALE (Hemiberlesia lataniae) - ALABAMA - Collected on round leaf holly at Selma, Dallas County, by L.C. Alsobrook, October 4, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Collected on Rhododendron sp. (azaleas) at Greensboro, Hale County, by J. Deavours, October 12, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

FOREST AND SHADE TREES

INSECTS

PINE TORTOISE SCALE (Toumeyella parvicornis) - ALABAMA - Collected on ornamental Pinus echinata (shortleaf pine) at Leesburg, Cherokee County, by C.H. Ray, August 10, 1976. Determined by M.L. Williams. This is a new county record. (McQueen).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - MISSISSIPPI - Trapped on pheromone-baited stand of loblolly and slash pines in Wayne County. Activity increased. (Anderson).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - FLORIDA - First larval hatch of season on *Prunus* spp. (wild plum and wild cherry) at Gainesville, Alachua County, February 15. (FL Coop. Surv.).

SPRING CANKERWORM (*Paleacrita vernata*) - KANSAS - First male moths of season flew to lights at Wichita, Sedgwick County, February 9, and at Manhattan, Riley County, February 13. (Bell).

A SOFT SCALE (*Ceroplastes ceriferus*) - ALABAMA - Collected on deciduous tree at Tuskegee, Macon County, December 4, 1976. Collected and determined by M.L. Williams. This is a new county record. (McQueen).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - Averaged 2.15 per head in backs of 73 dairy cattle in Payne County. (OK Coop. Surv.).

HOG LOUSE (*Haematopinus suis*) - OKLAHOMA - Moderate on hogs in Muskogee County. (OK Coop. Surv.).

WINTER TICK (*Dermacentor albipictus*) - OKLAHOMA - Ranged 25-30 per ear on cattle in Okmulgee County. (OK Coop. Surv.).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - ARKANSAS - Scattered but heavy on caged layers in Washington County. (Simco, Meisch). Heavy on breeder hens in Independence County. (Jones).

MISCELLANEOUS PLANTS

WEEDS

SPIKEWEED (*Centromadia pungens*) - IDAHO - Collected east of Lewiston, Nez Perce County, by L. Kambitsch, August 1974. Determined by L.C. Erickson. This is a new State record. (Higgins).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

HONEY BEE (*Apis mellifera*) - NEW MEXICO - Pollen collecting in full swing in Luna, Dona Ana, and Eddy Counties; brood rearing begun as elm trees burst into full bloom. (NM Coop. Rep.).

FEDERAL AND STATE PROGRAMS

INSECTS

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Traps moved to more favorable host plants in Los Angeles County. Treatment continued with total of 434,384 bait stations placed over 126-square-mile area. (CA Pest Rep.).

WEEDS

TEXAS BLUEWEED (Helianthus ciliaris) - IDAHO - Collected at Twin Falls, Twin Falls County, by W. Savage, July 27, 1974. This is a new State record. Site infested for about 20 years according to farmer. Collected at second site in Twin Falls by R.E. Higgins, August 3, 1975. Site infested for about 6 years. Both determined by D. M. Henderson. Eradication underway (Higgins).

HAWAII PEST REPORT

General Vegetables - Adults of a LEAFMINER FLY (Liriomyza spp.) heavy (80 percent of leaves heavily mined) on acre of tomatoes at Laie, Oahu. (Burkhart et al.). CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate to heavy on 0.25 acre of sugar peas at Wahiawa, on 0.5 acre of pole beans at Waialua, and on 0.25 acre of eggplants at Sunset Beach, Oahu. (L. Nakahara). Eggs and nymphs of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on 0.5 acre of bush beans at Laie and on 0.25 acre of eggplants at Sunset Beach; damage minimal. (Burkhart et al.).

Fruits and Nuts - Several larvae of a NYMPHALID BUTTERFLY (Agraulis vanillae) collected from Passiflora edulis (purple granadilla) and Passiflora suberosa at Manoa, Oahu, January 30, 1977. Collected and determined by J. Beardsley. These are new host records for State. (Beardsley et al.).

Ornamentals - All stages of a WHITEFLY (Orchamoplatus mammaeferus) moderate on Eugenia uniflora (pitanga) and light on Citrus limon (lemon) and Begonia sp. at Palolo, Oahu, by K. Murai and L. Nakahara, February 2, 1977. Determined by S. Higa. These are new host records for State. (Murai, L. Nakahara).

Forest and Shade Trees - STRIPED MEALYBUG (Ferrisia virgata) and CITRUS MEALYBUG (Planococcus citri) light to heavy on terminals and pods of Samanea saman (monkeypod) trees at Ala Moana, Oahu, week ending February 11. Predation by Cryptolaemus montrouzieri (a lady beetle) and Gitonides perspicax (mealybug predator fly) noted. (Beardsley, Higa).

Snail Pests - Total of 6,202 specimens of EUROPEAN BROWN SNAIL (Helix aspersa) collected in eradication effort at Waimea, Hawaii Island, February 4. No new infestation sites outside of treatment area to date. Surveys of interception areas at Koloa and Kalaheo, Kauai, continued negative. (Entomol. Branch, State Dep. Agric.). Juveniles to 4-inch adults of GIANT AFRICAN SNAIL (Achatina fulica) noted in one-acre residential area at Kekaha, Kauai; area treated. Infestations reported at Hanapepe, Poipu, Lihue, Nawiliwili, Ahukini, and Waipouli on Kauai. (Sugawa).

DETECTION

NEW STATE RECORDS

INSECTS

AN ANT (Formica obscuriventris obscuriventris) - UTAH - Collected in Tony Grove area of Logan Canyon, Cache County, by G.F. Knowlton, June 3, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica opaciventris) - UTAH - Collected at Elk Valley, Cache County, July 29, 1976, and at Tony Grove Lake, August 17, 1976, by G.F. Knowlton. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica subsericea) - UTAH - Collected at Ant Valley, Cache County, by G.F. Knowlton, July 6, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Myrmecocystus hammettensis) - UTAH - Collected 31 miles southwest of Park Valley, Box Elder County, by G.F. Knowlton and W.J. Hanson, June 21, 1975. Determined by G.C. Wheeler. (Knowlton).

WEEDS

SPIKEWEED (Centromadia pungens) - IDAHO - Nez Perce County. (p. 69).

TEXAS BLUEWEED (Helianthus ciliaris) - IDAHO - Twin Falls County. (p. 70).

NEW COUNTY RECORDS

INSECTS

AN ANT (Camponotus herculeanus) - UTAH - Collected at Ephraim Canyon (7,500-foot elevation), Sanpete County, by G.F. Knowlton, August 13, 1975. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica altipetens) - UTAH - Collected at Petersboro, Cache County, by G.F. Knowlton, July 25, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica densiventris) - UTAH - Collected among aphids curling leaves of Symphoricarpos at summit of Bear River Range (8,000-foot elevation), Rich County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Formica subsericea) - UTAH - Collected at summit of Bear River Range (about 8,000-foot elevation), Rich County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Iridomyrmex pruinosus analis) - UTAH - Collected at Green Canyon, Cache County, by G.F. Knowlton, July 5, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Lasius crypticus) - UTAH - Collected in residence at Brigham City, Box Elder County, by G.F. Knowlton and H.E. Collmar, May 2, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Lasius fallax) - UTAH - Collected in "Sinks" area of Logan Canyon, Cache County, by G.F. Knowlton, September 16, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ANT (Myrmica emeryana) - UTAH - Collected in fir and quaking aspen detritus at Franklin Basin, Cache County, by G.F. Knowlton, September 21, 1976. Determined by G.C. Wheeler. (Knowlton).

AN ARMORED SCALE (Abgrallaspis cyanophylli) - ALABAMA - Barbour (p.68).

AN ARMORED SCALE (Hemiberlesia lataniae) - ALABAMA - Dallas (p. 68).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Hale (p. 68).

A LECANODIASPID SCALE (Lecanodiaspis prosopidis) - ALABAMA - Cleburne (p. 68).

A MEALYBUG (Pseudococcus sorghiellus) - ALABAMA - Barbour (p. 68).

PINE TORTOISE SCALE (Toumeyella parvicornis) - ALABAMA - Cherokee (p. 68).

A SOFT SCALE (Ceroplastes ceriferus) - ALABAMA - Barbour (p. 68) and Macon (p. 69).

TERRAPIN SCALE (Lecanium nigrofasciatum) - ALABAMA - Barbour (p. 68).

CORRECTIONS

CPPR 2(7):64 - *Cochlicella barbara* ... a helcid snail should read a helicellid snail.

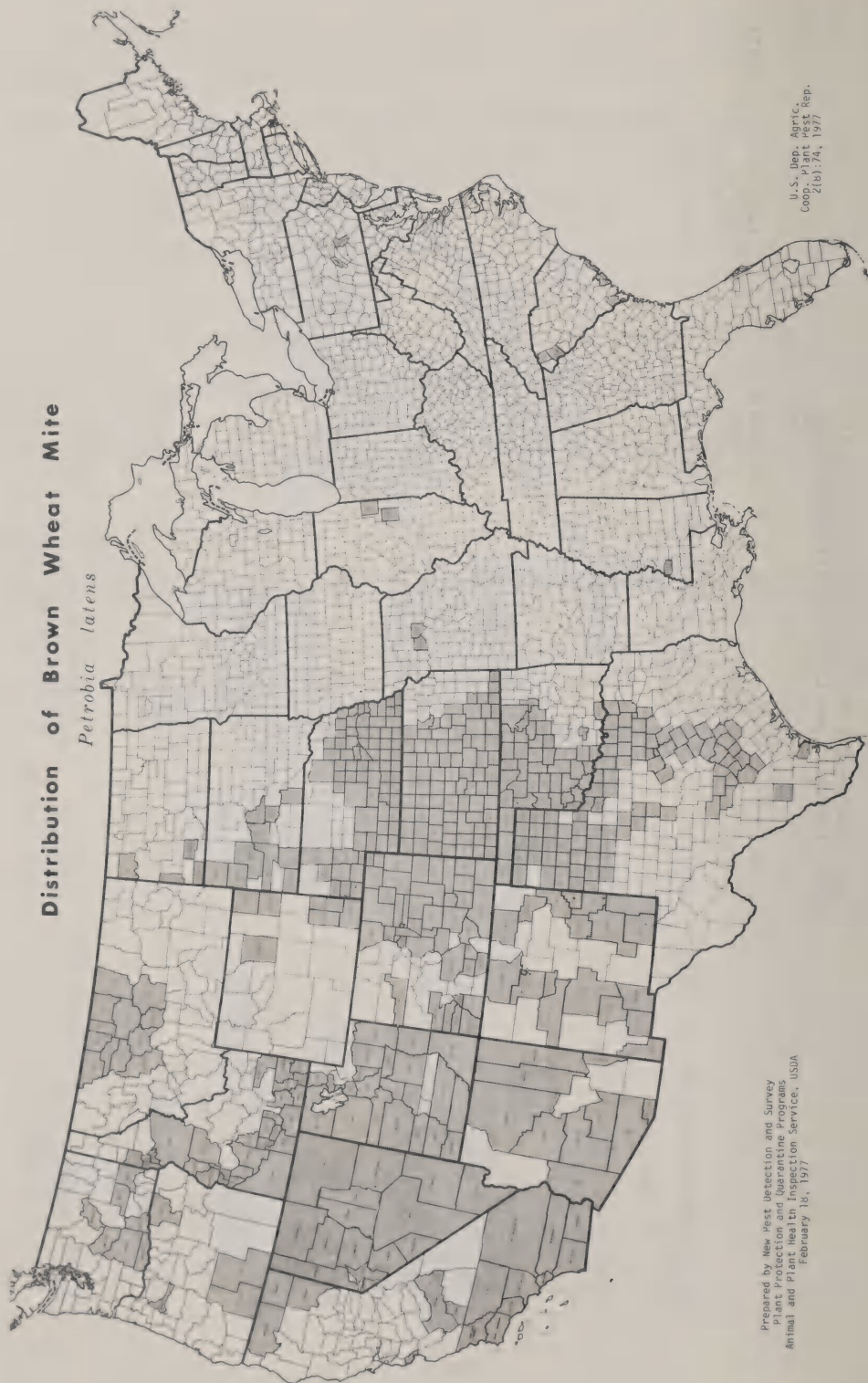
Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Pucciniastrum areolatum</u> (Fr.) Othth a rust Det. F. Pollack	aeial	on pine seed debris from cargo	New York	NY
<u>Sphaceloma punicea</u> Bitanc. & Jenkins a fungus Det. J.M. Van Valkenburg	imperfect	on pomegranate fruit from baggage	Brownsville	TX
<u>Hylastes ater</u> (Paykull) a scolytid beetle Det. D.M. Anderson	adult	in wood pallets with nectarines	San Francisco	CA
<u>Lepidosaphes pini</u> (Maskell) an armored scale Det. S. Nakahara	adult	on pine trees from ship's quarters	Astoria	---
<u>Spodoptera mauritia</u> (Boisduval) lawn armyworm Det. D.M. Weisman	larval	on palm plants from cargo	Hawaii	HI
<u>Tetropium castaneum</u> (Linnaeus) a cerambycid beetle Det. D.M. Anderson	larval	in wood cases of glass	New York	NY
<u>Achatina fulica</u> Bowdich giant African snail Det. E.J. Ford	adult	with plantains from baggage	Dulles	VA
<u>Helicella conspurcata</u> (Draparnaud) a helicellid snail Det. R. Munkittrick	adult	with boxes of household goods	Houston	CA

Distribution of Brown Wheat Mite

Petrobia latens



Prepared by New Pest Detection and Survey
plant protection and eradication programs
Animal and Plant Health Inspection Service, USDA
February 18, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(16):74, 1977

The Genus Rhopalosiphoninus Baker (Homoptera: Aphididae)^{1/}
in North America

Clyde F. Smith and George F. Knowlton^{2/}

ABSTRACT. Keys are given for aptera and alate Rhopalosiphoninus known to occur in North America. R. kelleri, n.sp., is described from Utah.

The genus Rhopalosiphoninus was erected by Baker (1920a:58) with Amphorophora latysiphon Davidson as the type-species. Since 1920, other species have been placed in Rhopalosiphoninus but at this time (1977) they are placed in other genera or in the subgenus Myzosiphon. The valid species or subspecies are:

Rhopalosiphoninus latysiphon (Davidson 1912a:408)
Rhopalosiphoninus kelleri n.sp.
Rhopalosiphoninus (Myzosiphon) solani (Thomas 1879a:73)
Rhopalosiphoninus (Myzosiphon) staphyleae (Koch 1854a:32)
Rhopalosiphoninus (Myzosiphon) staphyleae ssp. tulipaeillus (Theobald 1916g:145)

The following species have been recorded under the genus name of Rhopalosiphoninus and as occurring in North America.

Rhopalosiphoninus ligustri (Kaltenbach 1843a:48) (Theobald 1926a:216) is a synonym of Myzus (Nectarosiphon) ligustri (Mosley 1841a:628) (Eastop and Hille Ris Lambers 1976a:302).

Rhopalosiphoninus nervatus (Gillette 1908c:63) (Börner 1928a:228) is now listed as Wahlgreniella nervata (Gillette) by Eastop and Hille Ris Lambers 1976a:955.

Rhopalosiphoninus persimilis Hille Ris Lambers (1960c:261) is a synonym of Rhopalosiphum (Myzosiphon) solani (Thomas) (Hille Ris Lambers 1966h:609; Eastop and Hille Ris Lambers 1976a:378).

Rhopalosiphoninus rhois (Monell 1879a:27) (Börner 1926a:228) is placed in Rhopalosiphum by most American authors. Eastop and Hille Ris Lambers (1976a:206) place rhois in Glabromyzus.

^{1/} Paper No. 4971 of the Journal Series of the North Carolina Agricultural Experiment Station, Raleigh, North Carolina.

^{2/} Contribution of the Department of Entomology, North Carolina State University, Raleigh, North Carolina 27607, and the Department of Biology, Utah State University, Logan, Utah 84322.

Key to Aptera in North America

1. Swollen portion of siphunculus smooth (Fig. 1). 2
- 1'. Swollen portion of siphunculus scabrous (Fig. 2C) . . . R. kelleri, n.sp.
- 2(1). Tip of siphunculus with 4 or more rows of reticulation; antennal segment III without rhinaria; dorsum of abdomen with distinct denticulate reticulation. R. latysiphon (Davidson)
- 2'. Tip of siphunculus with 0-3 rows of faint reticulation; antennal segment III usually with rhinaria; dorsum of abdomen without distinct denticulate reticulation 3
- 3(2'). Setae on antennal segment III (alate) 0.02 mm
. R. (Myzosiphon) solani (Thomas)
- 3'. Setae on antennal segment III (alate) 0.016 mm or less 4
- 4(3'). Dorsum of abdomen without distinct, solid, sclerotic area, may have sclerotic bars; antennal segment III with 1-2, rarely 0-4 rhinaria R. (M.) staphyleae Koch
- 4'. Dorsum of abdomen with distinct, solid, sclerotic area covering 3 or more tergites on medial area of abdomen; antennal segment III with 2-5, rarely 1-7 rhinaria
. R. (M.) staphyleae ssp. tulipaeillus (Theobald)

Key to Alate Vivipara of North America

1. Tip of siphunculus with 0-3 rows of reticulation (Fig. 1B); antennal segment IV often with secondary rhinaria; dorsum of head denticulate 2
- 1'. Tip of siphunculus with 7 or more rows of reticulation (Fig. 1A); only antennal segment III with secondary rhinaria; dorsum of head smooth R. latysiphon (Davidson)
- 2(1). Setae on antennal segment V, 0.016 mm or less, distinctly shorter than diameter of antennal segment V and usually distinctly shorter than setae on abdominal tergum VIII 3
- 2'. Setae on antennal segment V, 0.02 mm, equal to or longer than diameter of antennal segment V and usually equal to or longer than setae on abdominal tergum VIII R. (Myzosiphon) solani (Thomas)
- 3(2). Antennal segment III with 9-19 rhinaria (spring migrants), others with 12-25 rhinaria, rhinaria not always in single line; dorsum of head between lateral ocelli with few spicules, especially on medial area, noticeably fewer spicules than on antennal tubercles
. R. (M.) staphyleae (Koch)
- 3'. Antennal segment III with 6-18 rhinaria, rhinaria in single line; dorsum of head between lateral ocelli evenly spiculate, nearly as many spicules as on antennal tubercles
. R. (M.) staphyleae ssp. tulipaeillus (Theobald)

Amphorophora latysiphon Davidson 1912a:408.

Since Davidson (1912a:408) described latysiphon from California, it has been recorded from Pennsylvania (Frost and Pepper 1957a:582; Pepper 1965a:215) and Washington (Knowlton 1952b:13; Johansen 1954a:13). We have seen specimens from several localities in North Carolina. The U.S. National Museum has specimens from California, Missouri, North Carolina, Oregon, Pennsylvania, Virginia, and Washington.

Rhopalosiphoninus kelleri, new species^{3/}

Apterous Vivipara

Color of cleared specimens: Dusky on head, all of antennae, legs, rostrum, siphunculi, cauda, and anal plate. Abdomen dark, sclerotic, slightly lighter than legs, siphunculi, and cauda.

Antennal tubercles rugose; vertex of head relatively smooth; antennal segment I and II denticulate; antennal segment III, IV, V, and VI strongly imbricated; setae on antennal segment III, pointed, slightly longer than diameter of base of antennal segment III; base of antennal segment VI with 3-5 setae, two of which are distinctly longer than base of antennal segment VI. Antennae without secondary rhinaria; rostral IV+V with 2 accessory setae. Tarsal chaetotaxy 3-3-2. Siphunculi scabrous on swollen part, reticulated on distal narrow area, scabrous and imbricated on narrow basal portion. Cauda with 4-6 setae.

Measurements in mm^{4/} Body length 2.08 (1.73-2.13). Head width (0.45-0.46). Antennal segment III, 0.41 (0.39-0.42); antennal segment IV, 0.24 (0.20-0.25); antennal segment V, 0.20 (0.17-0.21); antennal segment VI, 0.12 (0.12-0.14) + 0.42 (0.38-0.42). Rostral IV+V, 0.12 (0.11-0.12). Metatibiae, 1.13 (1.0-1.13). Metatarsomere II, 0.10 (0.08-0.11). Siphunculi 0.51 (0.49-0.51).

Host: Unknown.

Holotype: Apterous viviparous female, American Fork Canyon, Utah, August 20, 1974, George F. Knowlton and Clyde F. Smith, deposited in the U.S. National Museum. Paratypes: 5 apterous viviparous females and 1 nymph, same data as holotype, in collections of the authors.

^{3/} Named in honor of Floyd Keller, naturalist and conservationist, who served many years as a naturalist at Glacier National Park and the Petrified Forest National Park.

^{4/} Measurements preceding the parentheses are of the holotype; measurements in parentheses represent variation within the species.

Rhopalosiphoninus kelleri, new species, differs from all other Rhopalosiphoninus known to the authors by the scabrous swollen portion of the siphunculi. The apterous oviparous female of Rhopalosiphoninus maianthemii Stroyan has faint imbrications but is not scabrous.

Rhopalosiphoninus (Myzosiphon) solani (Thomas 1879a:73)

Megoura solani Thomas 1879a:73.

Rhopalosiphoninus persimilis Hille Ris Lambers 1906c:261.

Dr. L.J. Stannard of the Illinois Natural History Museum kindly loaned us the type-species of R. (M.) solani (Thomas). Labels on the slide contained the following information: Left side - "Thomas Aphididae. Megoura solani Thomas now Rhopalosiphum species, Davis det., slide 2772;" (in white), "Carbondale, tomato occidentalis, May 26 '78."

The specimen is mounted on balsam and it is very difficult to see many of the characters clearly and the slide is so thick that it is impossible to use high power.

We have seen specimens of R. (M.) solani from Georgia, Illinois, Iowa, Maine, North Carolina, Pennsylvania, and Washington in the United States and from Fredericton, New Brunswick, Canada.

Rhopalosiphoninus (Myzosiphon) staphyleae (Koch 1854c:32) s.l.
and

Rhopalosiphoninus (Myzosiphon) staphyleae ssp. tulipaellus
(Theobald 1916g:145)

Hille Ris Lambers (1953a:17-28) gives a description and key to R. staphyleae (Koch) s.l., R. staphyleae staphyleae (Koch) s.s., and R. staphyleae tulipaellus (Theobald) s.s. Hille Ris Lambers (1966h:609) states, "R. staphyleae has been introduced into California, probably on tulip bulbs and maintains itself on native plants e.g., Dentaria sp. and Oxalis oregana." Specimens were also collected at Berkeley, California, on Rhaiolepes sp. by C.F. Smith. Hille Ris Lambers also reported R. tulipaellus caught in a Moericke trap in Pennsylvania by J.O. Pepper. Of six specimens observed of Rhopalosiphoninus collected from Pennsylvania by J.O. Pepper, we believe four are R. (M.) solani (Thomas), and two R. (M.) staphyleae ssp. tulipaellus.

Medler and Ghosh (1969a:75) reported the subspecies tulipaellus in suction traps from Nebraska and yellow pan traps from Indiana, Missouri, and Wisconsin. We have not seen these specimens. Specimens we have seen from Wisconsin and Iowa determined as tulipaellus by Medler and Ghosh are R. (M.) solani (Thomas). Essig (1947a:614) reported tulipaellus from California, Oregon, and Washington. Records on slides of staphyleae s.s., we have seen, indicate it has been introduced into California, Illinois, New York, Oregon, Texas, and Washington on tulip bulbs. We have also seen specimens from Wisconsin collected on gladiolus corms.

We have seen specimens of R. (M.) staphyleae ssp. tulipaellus from New York, Germany, and Denmark.

As indicated by Hille Ris Lambers (1953a:17) the differences between staphyleae s.s. and ssp. tulipaellus are slight and single specimens cannot always be identified. R. (M.) solani (Thomas) also falls in this group and may be a subspecies of staphyleae (Koch) s.l.

References

Literature references cited here and not listed below, are in "Bibliography of the Aphididae of the World" by Clyde F. Smith, 1972. North Carolina Agricultural Experiment Station Technical Bulletin No. 216.

Eastop, V.F., and D. Hille Ris Lambers. 1976a. Survey of the world's aphids. Dr. W. Junk b.v., Publishers, The Hague.



Fig. 1. Siphunculus. A, Rhopalosiphoninus latysiphon; B, R. (M.) staphyleae.

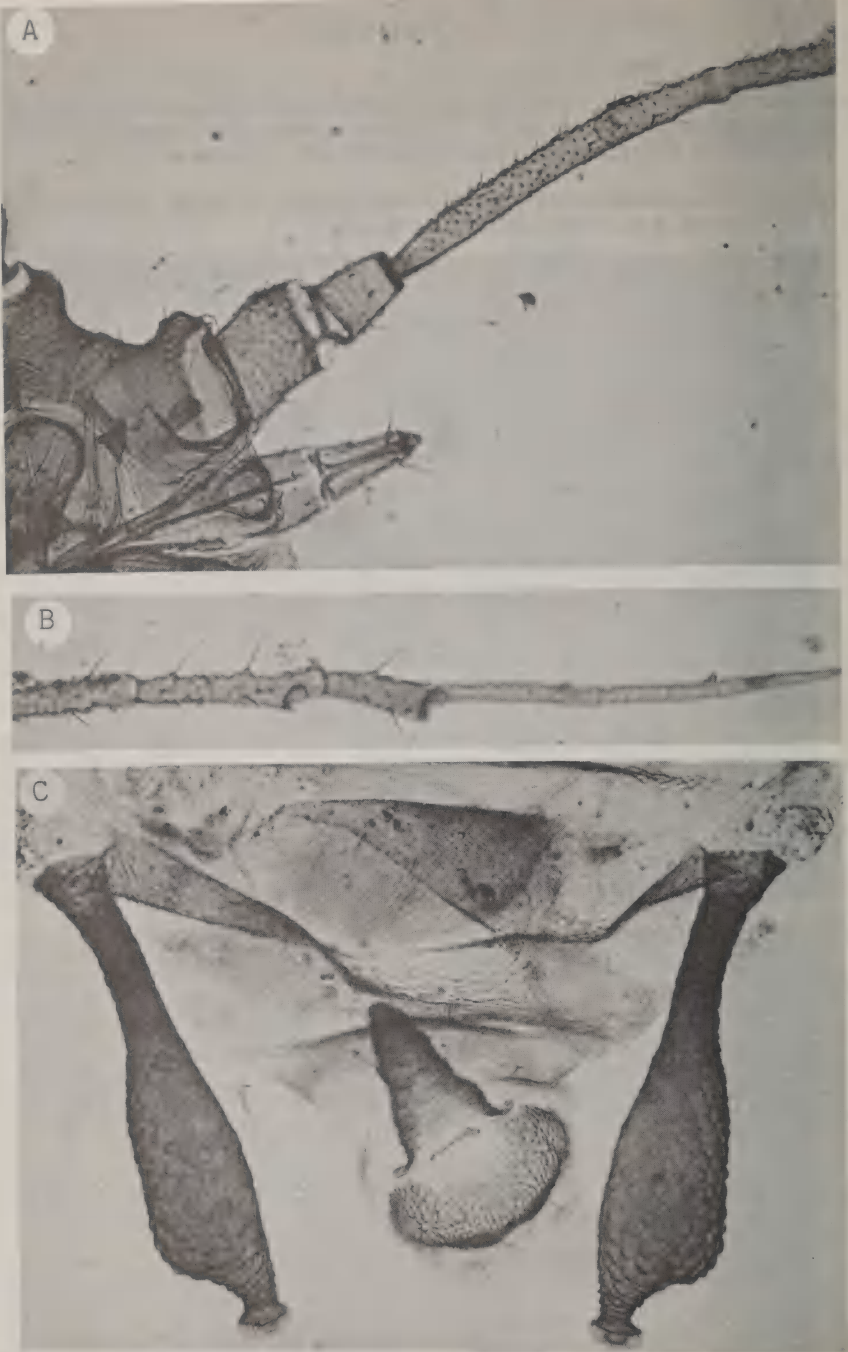


Fig. 2. Rhopalosiphoninus kelleri, n.sp. A, head, antennal segments I, II, and III, and R IV+V; B, antennal segments V and VI; C, tip of abdomen, cauda, and siphunculi.

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(8):75-80, 1977

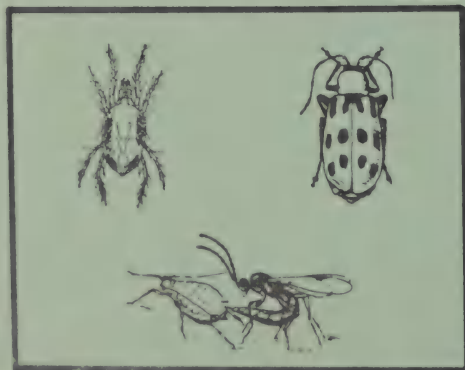
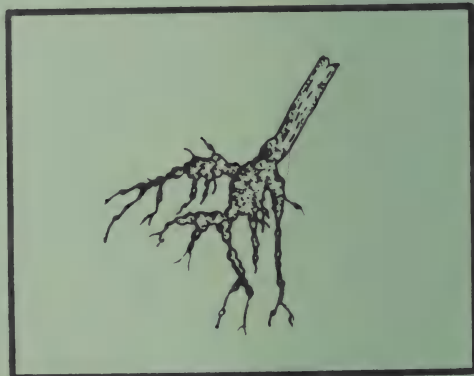
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Cooperative **PLANT PEST REPORT**

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**Animal
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Health
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DEPARTMENT
OF AGRICULTURE**



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR
New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

DETECTION

See page 85 for a new county record.

New host records reported for an ARMORED SCALE and GREEN PEACH APHID in Florida. (p. 84).

Some First Occurrences of the Season

TOBACCO BUDWORM larva in California. BROWN WHEAT MITE and ALFALFA WEEVIL larva in Oklahoma. GREEN PEACH APHID nymphs in Oregon. ELM LEAF BEETLE adults in New Mexico. FACE FLY adults in Arkansas.

Special Reports

Summary of Pest Conditions in the United States - 1976

Introduction. (p. 87).

Special Pests of Regional Significance. (p. 87-99).

Distribution of Army Cutworm (map). (p. 89).

Distribution of Oldhouse Borer (map). (p. 100).

Reports in this issue are for the week ending February 25 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - NEW MEXICO - Occasional larva found in wheat fields west of Clovis, Curry County. No noticeable damage. (NM Coop. Rep.).
OKLAHOMA - Light on scattered wheat in Major, Logan, and Kingfisher Counties. (OK Coop. Surv.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Populations continued to cause moderate stress to wheat in Curry and Quay Counties. (NM Coop. Rep.).
OKLAHOMA - Counts per row foot of wheat by county: Jackson, Greer, Harmon, Kiowa, and Tillman 5-30 in most fields checked but up to 200 in spots in 2 fields in northern Jackson County; Major, Logan, and Kingfisher 0-13; Grady 0-10; Stephens 0-5; and Hughes averaged one. (OK Coop. Surv.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - First larva of season on geranium in Fresno County January 19. (CA Pest Rep.).

SMALL GRAINS

INSECTS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 10-15 per row foot of scattered wheat fields in southwest counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - First of season ranged 10-20 per row foot in wheat field in northeast Kingfisher County. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae 2 per 50 sweeps of 10-inch alfalfa 3 miles north of Quemado, Maverick County, February 9. (Stewart).
OKLAHOMA - First larva of season hatched on alfalfa in Jackson and Tillman Counties. Egg averages per square foot by county: Grady 24 on February 17 and Payne 26 on February 18.

DECIDUOUS FRUITS AND NUTS

INSECTS

GREEN PEACH APHID (Myzus persicae) - OREGON - Nymphs began to hatch at Hermiston, Umatilla County. First nymphs on dooryard plantings of peach February 19. (Goeden).

OTHER TROP. & SUBTROP. FRUITS

INSECTS

OLEANDER SCALE (Aspidiotus nerii) - CALIFORNIA - Nymphs and adults moderate to heavy on avocado at National City, San Diego County. About 6,000 individuals per stem. (CA Pest Rep.).

ORNAMENTALS

INSECTS

JUNIPER WEBWORM (Dichomeris marginella) - OREGON - Larval damage appears to be on upward trend on several host species in commercial nurseries in eastern Multnomah County. (Nicolaison).

AN ARMORED SCALE (Abgrallaspis cyanophylli) - FLORIDA - Damage moderate to leaves of 90 percent of 100 Dracaena marginata (sanders dracaena) in nursery at Wauchula, Hardee County, by G.P. Lamb, February 6, 1977. New host record for State. (FL Coop. Surv.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Damaged 50 percent of 100 Senecio rowleyanus (string-of-pearl) in nursery at Avalon, Orange County, by February 17. New host record for State. (FL Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - Aerial survey of Choctaw Unit yielded 23 spots with about 1,500 damaged trees in Winston County; Grenada Unit yielded 27 spots with many large damaged areas on private land in Yalobusha County, one private land spot contained about 2,000 damaged trees; Trace Unit contained about 20 damaged spots which involved about 2,500 damaged trees in Chickasaw County. Small percentage of spots ground checked and confirmed as southern pine beetle damage. Principal pine species involved Pinus taeda (loblolly pine) and P. echinata (shortleaf pine). (Honea, Purser).

SPRUCE APHID (Elatobium abietinum) - OREGON - Increased rapidly on spruce in eastern Multnomah County. Early detection and control necessary for successful treatment. (Nicolaison).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Adults active in Luna, Dona Ana, Eddy, and Chaves Counties. Elm trees in full bloom. (NM Coop. Rep.).

MAN AND ANIMALS

INSECTS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - First adults of season in Comanche County. (OK Coop. Surv.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 20 per animal* in small beef herd near Gainesville, Alachua County, February 23. Population may reach economic levels in 7-14 days. (FL Coop. Surv.).

FACE FLY (Musca autumnalis) - ARKANSAS - Adults coming out of dormancy and appearing in large numbers in State due to abnormally warm weather. (Jones).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - ARKANSAS - Moderate to heavy in northern half of State. (Jones).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEW MEXICO - Very active on dogs at Las Cruces, Dona Ana County. (NM Coop. Rep.).

HOUSEHOLDS AND STRUCTURES

INSECTS

A WEEVIL (Hexarthrum ulkei) - MICHIGAN - Found in residence at Battle Creek, Calhoun County, by D. Powers, January 24, 1977. Determinations confirmed by D.M. Anderson and D.R. Whitehead. This is a new county record. Damaged pine moulting in damp basement recreation area. Beetle galleries packed with frass. No emergence holes found on finished surface of wood. (Liebherr).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults very active in wheat in several southwest and central counties. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

DISEASES

CITRUS TRISTEZA VIRUS - CALIFORNIA - Removal of diseased trees continued at Lind Cove, Tulare County, week ending February 11. Infected trees increased from 7 to 34; immediate removal implemented. Trees around infected trees retested. (CA Pest Rep.).

DUTCH ELM DISEASE (Ceratocystis ulmi) - CALIFORNIA - Treatment for SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) completed in Napa and Santa Clara Counties, except for Stanford campus. Treatment three-fourths completed in Marin County and will begin this period in Sonoma County. (CA Pest Rep.).

INSECTS

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Treatment continued in Los Angeles County. Status of treatment by area week ending February 25: Hollywood fourth treatment completed, central Los Angeles sixth treatment 60 percent completed, La Crescenta seventh treatment 50 percent completed, Santa Monica sixth treatment completed, Pico Rivera seventh treatment completed, and Inglewood eighth treatment 90 percent completed. (CA Pest Rep.).

SCREWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. January 30 to February 12. Total of 124 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 1,233 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 192,529,300, all in Texas. Total of 219,310,900 sterile flies released within Barrier of Mexico. (Vet. Serv.).

DETECTION

NEW COUNTY RECORDS

INSECTS

A WEEVIL (Hexarthrum ulkei) - MICHIGAN - Calhoun (p. 85).

CORRECTIONS

CPPR 2(7):62 - CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - For Appomattox and Buckingham Counties, larvae were collected by W.D. Jones and D.L. Barnes. Also add collected at Halifax, Halifax County, by D.H. Jones and D. L. Barnes, May 20.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Elsinoe australis</u> Bitanc. & Jenkins a fungus Det. H.L. Rubin	imperfect	Argentina	Miami	FL
<u>Dacus dorsalis</u> Hendel oriental fruit fly Det. G. Muraoka	larval	Hawaii	Honolulu	CA
<u>Maruca testulalis</u> (Geyer) bean pod borer Det. R. Kunishi	larval	Hawaii	Honolulu	CA
<u>Ovalisia</u> sp. a buprestid beetle Det. J.M. Kingsolver	larval	Japan	Baltimore	USA
<u>Tomiscus piniperda</u> (Linnaeus) a scolytid beetle Det. D.M. Anderson	adult, larval	Spain	San Juan	PR
<u>Placosternus</u> sp. a cerambycid beetle Det. T. Spilman and D.M. Anderson	all	Paraguay	Wilmington	NC
<u>Trogoderma granarium</u> Everts khapra beetle Det. F. Krim	larval	---	New York	USA
<u>Veronicella moreletii</u> Crosse & Fischer a veronicellid slug Det. R. Munkittrick	adult	Honduras	San Juan	PR

INTRODUCTION

The summary of pest conditions, beginning in this issue, will be continued in several succeeding issues of the "Cooperative Plant Pest Report." This summary was compiled by the New Pest Detection and Survey Staff from annual summaries submitted by various State and Federal cooperators. A list of individuals who assisted in assembling data will appear near the end of the last section of this summary. The New Pest Detection and Survey Staff appreciates the assistance of all individuals who have participated in the preparation of material for the 1976 summary.

SPECIAL PESTS OF REGIONAL SIGNIFICANCEHighlights

Treatments for ARMY CUTWORM were applied to about 2,500,000 acres of wheat in western Oklahoma. Populations and damage were the heaviest recorded in 22 years. Scattered economic damage to alfalfa was noted in Nebraska. Treatment for ARMYWORM on tomatoes was needed in southern California. Outbreaks occurred in Ohio, mainly in corn and wheat. Armyworm adults in New York were 10 times greater than normal. In Massachusetts, a devastating infestation occurred. A total of 142,000 acres was treated for BEET LEAFHOPPER in California. CORN EARWORM damaged about 90 percent of the corn ears in untreated plots in Grant and Adams Counties in Washington. Flagging was 80 percent at Artesia, New Mexico. Infestations were heavy on corn ears and tassels in Oklahoma. Peanut defoliation was severe in Florida, South Carolina, and North Carolina. Cotton infestations in North Carolina were the most severe in 10+ years. In Virginia, larvae in most coastal counties had increased about 2-5 times over that in 1975. TOMATO FRUITWORM required 15 or more treatments in Alabama. Infestations of CORN LEAF APHID were continually treated during July in some areas of New Mexico. Populations in Maine were lighter than in the previous 8 years. GREENBUG increased in Oregon for the third consecutive year. Counts and damage in Texas were economic for the first seven months of the year. About 3 million acres of wheat were treated in Oklahoma early in the year. Some young sorghum was destroyed by infestations in several areas of the State. An outbreak was experienced in Kansas with some fields destroyed. Grass was killed in Illinois and Ohio. POTATO LEAFHOPPER infestations were up to 400 per 100 sweeps of alfalfa in Illinois. Because of a late population peak in Indiana, only the third growth of alfalfa generally needed controls. Damage was again heavy in Virginia. SPOTTED ALFALFA APHID was economic on seed alfalfa in Nevada. An infestation was noted in Arkansas after a 2 to 3-year absence. Infestations were unusually heavy in Nebraska in April.

DISEASES

ASTER YELLOWS VIRUS infected 2 percent of the ASTER LEAFHOPPER (*Macrostelus fascifrons*) population in MINNESOTA during 1976. Collections for indexing were taken from rye at Becker, Sherburne County. This virus infected 5 percent, a significant increase over 1975 levels, of the aster leafhopper population in WISCONSIN.

INSECTS

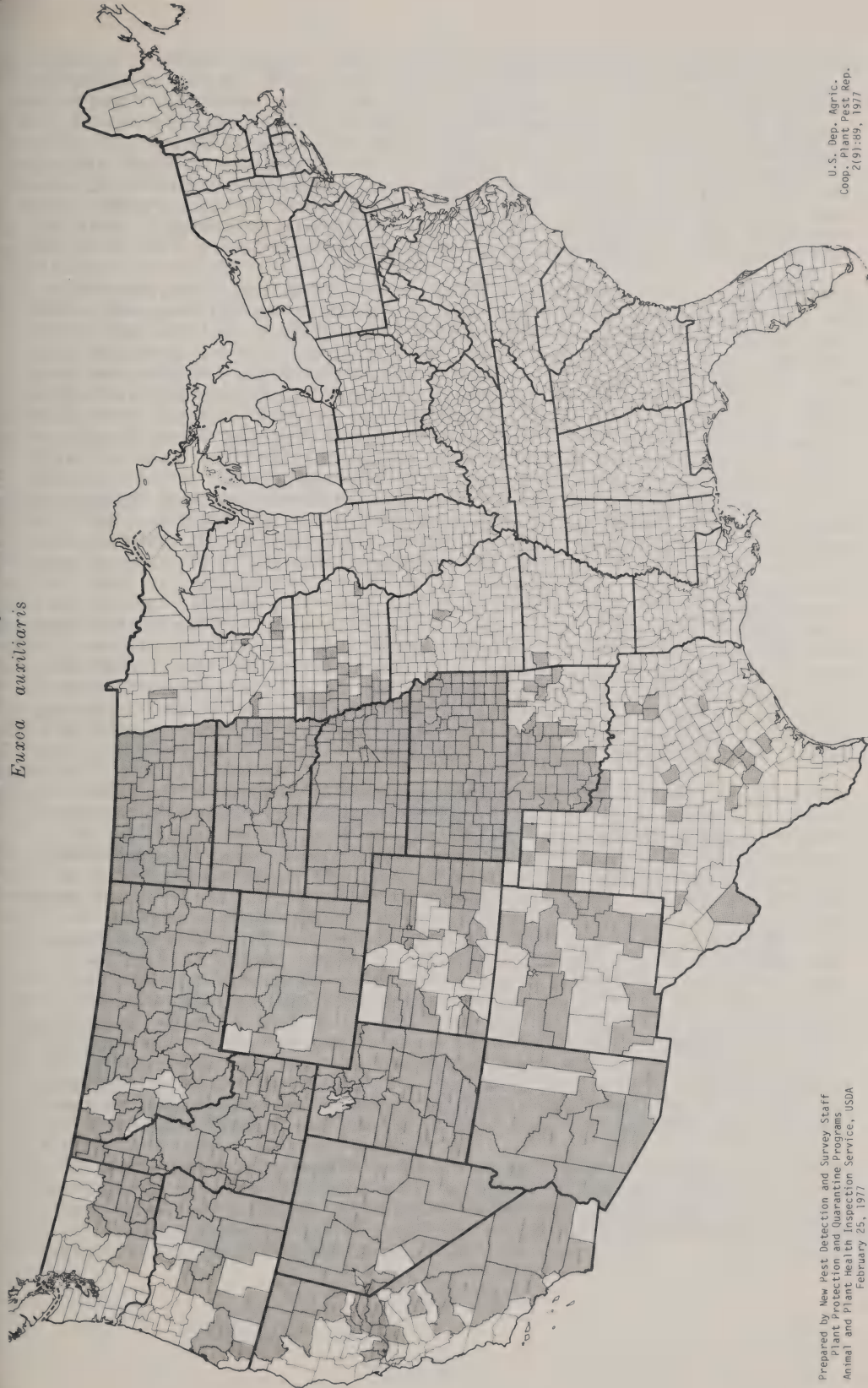
ARMY CUTWORM (*Euxoa auxiliaris*) larvae were first reported damaging winter wheat in Carter and Cascade Counties of MONTANA April 14, 1976. Larvae were taken from a lawn near rangeland at Billings, Yellowstone County, 14 days later. One larva per linear foot of winter wheat was reported at Manhattan, Gallatin County, May 7. Damage to wheat was not obvious but was severe in some alfalfa fields in the same area where larvae ranged 2-15 per square foot over an estimated 3,600 acres. At this point, larvae ranged 0.5-1.25 inches long, the majority near the latter length. Damaging populations occurred in Wichita County, TEXAS, from mid-January 1976 until the end of March with 0.2-1.8 larvae per row foot of small grains throughout that time. Moderate to heavy infestations were beginning to appear in scattered wheat fields in the western half of OKLAHOMA by mid-January 1976. Populations increased rapidly to 3-15 per row foot in many fields during February. Populations varied from field to field with some fields averaging less than one per row foot. Treatments were applied in some areas by late January and over large-scale areas, about 2,500,000 acres, in the western half of the State in February and early March. Little or no treatment in several north-central counties resulted in a number of completely destroyed fields. Overall populations and damage in 1976 were the heaviest recorded in 22 years of survey records. Pupation was underway in Grady County by March 19 and adults were active by the last week of April. Very heavy adult populations were present in the western half of the State during May and early June. Army cutworms also damaged alfalfa in the western half of the State in February and early March. Counts of 2-10 per square foot heavily damaged scattered fields in some areas.

Scattered economic damage by army cutworm was observed in alfalfa (especially first-year stands) in the northwest, southwest, central, east, and northeast crop districts of NEBRASKA. Little damage occurred to wheat in 1976. Most established alfalfa stands recovered slowly. Occasional alfalfa fields were severely damaged in April: One first-year seeding in Hamilton County was 98 percent destroyed, established alfalfa in Chase County had up to 6 larvae per square foot, and one new seeding in Cumming County had 3 per square foot. This species and DINGY CUTWORM (*Feltia ducens*) damaged the borders of sugar beet fields in Scotts Bluff and Morrill Counties May 20. The first adults were observed in Clay and Scotts Bluff Counties the first week of May. Flights were extremely heavy in May and June as adults moved to the foothills of the Rocky Mountains. Infestations on small grains were economic in several south-central counties of SOUTH DAKOTA in 1976. An estimated 10,000 acres of wheat were treated in early May. Larvae, average of one per linear foot, caused some damage to winter wheat in Hettinger County, NORTH DAKOTA, in 1976. Army cutworm severely damaged sunflowers in one area south of Wheaton, Traverse County, MINNESOTA, during 1976. Loss was estimated at 90 percent.

ARMYWORM (*Pseudaletia unipuncta*) infestations on tomatoes in southern CALIFORNIA were light to moderate in 1976; treatments were needed. This species and FALL ARMYWORM (*Spodoptera frugiperda*) damaged late-planted sorghum and sudangrass plantings in Dona Ana and Luna Counties, NEW MEXICO, during mid-August 1976. Light armyworm infestations in wheat were scattered in the north-central and northwest counties of OKLAHOMA from mid-May to mid-June 1976. Some moderate infestations were found in Garfield County. ARMYWORM in ARKANSAS first infested wheat in mid-April 1976 in the northeast area. As usual, infestations peaked in late April. Up to 18 larvae per square foot were noted in some fields in St. Francis County. In some wheat and oat fields, armyworms cut off grain in maturing crops in May. Overall, only a small percentage of wheat and oats required treatment.

Distribution of Army Cutworm

Euxoa auxiliaris



Prepared by New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 23, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(9):89, 1977

Heavy adult flights of armyworm were noted in a Hall County, NEBRASKA, light trap June 20-22, 1976. The first heavy larval infestations on corn were noted in Hall, Merrick, Antelope, Pierce, Knox, Perkins, Clay, and Lincoln Counties July 23-28. First and second instar larvae were estimated at up to 25 per square foot on grassy corn in Antelope and Pierce Counties on July 28. Of 150 fields surveyed in Merrick, Hall, and Buffalo Counties August 4, treatments had been applied to 25 percent. Most heavy infestations occurred in fields with poor control of grassy weeds. Damage decreased by August 15 and was almost completely over 5 days later. Second instar larvae infested barley in NORTH DAKOTA beginning July 23, 1976. No infestations were economic.

Armyworm damaged occasional grassy fields of corn in central ILLINOIS in July and early August 1976 and some late-planted sorghum in the southern area. Infestations were reported from occasional fields of small grain in the southern area by the first week of May. Up to 6 larvae (0.5 inch or smaller) were noted per linear foot of row. By the second week in June, populations were heavy in some southern fields and some grain heads. Losses were estimated at \$400,000, including control costs. Benefits from treatment of 34,000 acres were estimated at \$135,000, over and above dollar losses from control costs and damage. The potential for damage to small grains in 1977 is difficult to predict. Infestations in MISSISSIPPI were first reported on wheat in the last week of April 1976 in Washington, Sharkey, Quitman, and Tunica Counties. Economic damage was light. Damage was light to moderate in isolated corn fields in western and central KENTUCKY from late May to mid-June 1976. No-till corn was more heavily and more frequently infested than conventionally tilled corn. The first adult collected in a Tippecanoe County, INDIANA, blacklight trap was taken March 30, 1976. Flights there peaked on April 24 and July 3. Trap collections reached 1,600 per trap per week. Larvae on roadsides in the southern area were 0.5 inch long by May 12, and were reported from wheat May 28. Similar reports from the north-central area began June 4. All districts had localized infestations in wheat, pastures, and occasionally corn; the northern half of the State had the most infestations. Treatments were applied in some instances, but most infestations ranged 2-3 larvae per linear foot or less. Treatment was needed where occasional head clipping occurred.

Outbreaks occurred all over OHIO during mid-June 1976 in several crops but mainly in corn and wheat. Losses in isolated outbreak locations were heavy, often with nearly complete loss of the crop. As a result, widespread use of chemical sprays to protect corn and wheat was made. Overwintering populations damaged 20 percent of the 110,000 acres of wheat and 30,000 acres of oats in ALABAMA. The most serious damage occurred in the northern area. Treatments were applied to about 5 percent of the acres. Larvae of this species and FALL ARMYWORM (*Spodoptera frugiperda*), appearing in June and July, were more important pests of Coastal bermudagrass and other turf than during the past 10-20 years in ALABAMA. Most damage occurred from July into October with 300,000+ acres treated 1-3 times in control efforts. Infestations were very light on small grains in SOUTH CAROLINA late in the spring of 1976. No appreciable damage was caused. Heavy populations of young armyworms damaged about 1,100 acres of Coastal bermudagrass in Scotland County, NORTH CAROLINA, during mid-July 1976. Reports continued from Coastal bermudagrass in the southern Coastal Plain until mid-August. Infestations ranged from 2 to 30 larvae per square foot with some 50-acre fields stripped. Controls were successful when applied properly.

Third and fourth instar armyworms were present in barley in Westmoreland County, VIRGINIA, February 2, 1976. The early damage was probably caused by the exceptionally warm weather. On May 21, infestations became a problem to small grains in Northumberland County and the City of Virginia Beach, although acreage needing treatment was still small. Scattered damage continued through

May 28 in the eastern area. The first armyworm larvae on corn were detected in Montgomery County, June 4, 1976. On June 14, larvae, 0.75-1.24 inches long, damaged 5 percent of 18 acres of 18-inch tall corn plants in Nottoway County. Infestations in sod-planted corn were less damaging in 1976 probably due to the increasing use of chemical controls. Activity in 1976 was generally below normal throughout MARYLAND and much below the 1975 levels with some localized outbreaks in Dorchester and Caroline Counties. In the Hurlock, Preston, and Vienna areas of these counties, one in 5 wheat fields showed economic levels (one larva per row foot) with yield losses of 1-25 percent. Statewide yield losses in wheat and barley ranged 0-5 percent and fewer than 700 acres needed replanting (some counties had up to 65 percent of the acreage in field corn preplant treated with a broad-spectrum soil systemic insecticide). First-brood adults were heavy the week ending April 30. Adults ranged 40-120 per night in blacklight traps on the Eastern Shore. Subsequent cold weather retarded adult activity. By early May, activity was 2-3 times lighter than the 1975 levels. Infestations were heavy in some areas of Sussex County, DELAWARE, and caused heavy feeding injury to young, late-planted corn during mid-August 1976. Infestations were light, mainly in no-till soybeans, during June and again in August. Heavy damage caused up to 50 percent loss of no-till corn in Centre County, PENNSYLVANIA, in 1976.

Armyworm adults in Ontario County, NEW YORK, light traps indicated heavy activity levels in 1976. The adult catch as of May 18 was about 10 times that of normal. Severe infestations on corn, especially no-till, was reported in Niagara, Wyoming, Wayne, and Sullivan Counties. A major proportion of no-till corn was treated in Sullivan County and about 5,000 acres of wheat were estimated to have been treated in Niagara County. Larval activity requiring treatment was also reported for Rensselaer County. The first adults in MASSACHUSETTS were captured in light traps in the eastern counties on May 18, 1976. A devastating infestation occurred on field corn in Hampshire County June 11. A heavy flight was recorded from blacklight traps in the southeastern counties July 15. Approximately 40-50 adults were captured per trap. Adult counts in blacklight traps in MAINE peaked May 17, 1976, with 137 adults at a research farm in Kennebec County and up to 50 per trap per night in the southern and central areas until the week of June 14 and then decreased sharply. About 500 acres of corn were treated in Kennebec and Androscoggin Counties. In an additional 1,000 acres, infested plants ranged 3-5 percent.

ASTER LEAFHOPPER (*Macrostelus fascifrons*) first migrated into NORTH DAKOTA April 26, 1976, in Richland County. Spring migrants were noted at 2 per 100 sweeps on rye there. Spring migrants were taken on barley in Richland County May 21 at 2.5 per 100 sweeps and in Traill County by June 4 at 3-4 per 100 sweeps. Counts per 100 sweeps ranged up to 23 on barley in Ransom County and up to 24 on wheat in Sargent County by June 11. Populations arrived earlier than usual in MINNESOTA in 1976. An average of 43 per 100 sweeps on rye at Becker, Sherburne County, and 40 per 100 sweeps on winter wheat at Waseca, Waseca County, was noted April 27. Populations decreased as the season progressed, apparently from cold, dry weather, and remained light and noneconomic for the rest of the season. Migrant adults in the 1976 growing season were first detected on winter rye in Dane and Rock Counties of WISCONSIN April 14, 1976. Surveys indicated an early, widespread migration. By mid-May, two per sweep were taken in Waushara County. ASTER YELLOWS VIRUS was present in 5 percent of the *M. fascifrons* population, a significant increase over that in 1975. The high rate of aster yellows virus and the moderate leafhopper populations resulted in a considerable amount of chemical control for the leafhopper in potatoes, lettuce, carrots, and celery. Dry weather during the treatment period resulted in excellent control of the leafhopper and a minimum amount of loss to the vegetable grower.

Aerial treatments for BEET LEAFHOPPER (Circulifer tenellus) were applied to 135,000 acres and ground treatments applied to an additional 7,000 acres in the San Joaquin Valley of CALIFORNIA in 1976. No treatments were needed in the southern desert region. Infestations in sugar beets were generally light in UTAH in 1976. Fall moisture conditions in breeding areas suggested possible above normal populations during the spring of 1977. The first infestations in WYOMING appeared in early spring in Washakie and Big Horn Counties with an average of 0.35 leafhopper per square foot in 1976, compared with 0.46 leafhopper per square foot in 1975. During late May, 36 per square yard infested barley and alfalfa south of Powell, Park County.

CORN EARWORM (Heliothis zea) infestations in corn in WASHINGTON were not as severe during 1976 as in 1975 in terms of numbers of larvae per ear. Untreated plots in Grant and Adams Counties suffered about 90 percent damaged ears. Infestations were unusually light in UTAH until mid-harvest of sweet corn in the northern and central areas when 50 percent became infested. Infestations were earlier and heavier in the southern area. Populations were light in 1976 for the second consecutive year in IDAHO. Little, if any, damage was caused by the first generation. Infestations for 1971 through 1976, peaked on silking corn at Parma at 247, 287, 250, 190, 150, and 151 larvae per 100 ears, respectively. Flagging of corn plants was 80 percent at Artesia, Eddy County, NEW MEXICO, in early July 1976. Some similar damage was observed in Dona Ana County at that time. Treatments in these areas continued through July. Larvae, 1-2 per ear, were found and damage occurred statewide on sweet corn by mid-August. By late August, 1-3 larvae per sheath damaged 75-90 percent of the corn in Quay County.

Heavy corn earworm infestations were found in tassels and ears of corn in most areas of OKLAHOMA from late June to mid-August 1976. Sorghum infestations were heavy in the heads or whorls in scattered areas in the southwest quarter of the State from late July to mid-August. Infestations were present in soybeans in the eastern areas from mid-August to mid-September. Counts of 1-2 per row foot were found in several east-central counties and a number of fields were treated. Infestations were very light throughout NEBRASKA in 1976, except in occasional fields of late-planted corn. Adults were very light in blacklight traps. One third-instar larva was swept from an alfalfa field in Red Willow County May 26 for one of the earliest seasonal records for this insect in the State. Larvae first appeared on ears of corn during early June 1976 in Noxubee and Lowndes Counties, MISSISSIPPI; 25 percent of the ears was infested. Populations increased by mid-August to one plus per ear in these counties. This species was the most important pest of grain corn and grain sorghum in ALABAMA, but only a small acreage of corn received controls. Approximately 10,000 acres of grain sorghum were treated one or more times for this pest along with FALL ARMYWORM (Spodoptera frugiperda) and SORGHUM WEBWORM (Celama sorghiella). H. zea was the more important pest of tomatoes throughout 1976 in gardens and commercial (10,000 acres) plantings in ALABAMA. All fields received 15 or more applications of insecticides per acre in control efforts. The first corn earworm adult was collected in a Porter County, INDIANA, blacklight trap August 6, 1976. Larvae were collected from 4 of 189 fields of corn grown for grain, all in late-planted fields in the southern one-fourth of the State.

Corn earworm infestations were normal in Dade County, FLORIDA, in 1976. This species and FALL ARMYWORM (Spodoptera frugiperda) were the principal insects infesting the ears of sweet corn and were present throughout the Everglades area. H. zea was generally lighter than normal during early June from Alachua County to Jackson County. Damage was less than usual during the second half of June on corn and sorghum. At Hastings, damage was heavy late in the season on corn and sorghum but not as heavy as in past years. Corn earworm was the third most important pest on peanuts, causing losses of about \$372,000.

Corn earworm infestations seemed below normal on general vegetables in some areas of SOUTH CAROLINA in 1976. This species and S. frugiperda were heavy in many peanut fields in mid-July. Controls were required and effective when used. Defoliation was greater than 50 percent in some instances. Corn earworm damage was heavy in many sorghum fields. The average yield was reduced by about 5 percent. Defoliation was severe in about 10 percent of the peanut fields in the northern Coastal Plain of NORTH CAROLINA in 1976. Foliar loss was 30 percent with one larva per plant in Edgecombe, Halifax, and Northampton Counties. Egg laying on cotton began August 2-10 in the southern to middle Coastal Plain counties. By August 16-18, infestations 3 times the threshold of 2 larvae per foot of row were detected in 40 percent of the open canopy fields, the most severe infestation observed in 10+ years. Pupation was completed by September 10 in most fields. Many treatments were applied too late; one properly applied treatment was adequate.

Large corn earworms infested 50 percent of the corn plants in 9 Cumberland County, VIRGINIA, fields June 15. By June 18, larvae were feeding in corn whorls in Amelia County. Through June 25, the amount of whorl damage was spotty and insufficient to justify control. Damage to sweet corn ears was more serious and required treatment. By July 2, infestations in whorls were heavier than in the past few years. The insects were also showing up on tassels of corn and in the silk. On August 6, a survey of 30 corn fields (750 ears of corn) in the Tidewater region showed 27.2 percent of all ears of field corn infested and a survey south of the James River showed 39.2 percent of the ears infested, twice as high as in 1975 (21.2 percent). In the middle peninsula, 30.8 percent of the corn was infested compared with 17.2 percent in 1975. The infestation level in the Northern Neck was 11.6 percent compared with 0.3 percent in 1975. Larval survey in corn in Virginia August 6, indicated a high rate of infestation would occur in soybeans. Most larvae in corn were nearing pupation by early August. Samples from 29 soybean fields (597 acres) in Westmoreland County the week before August 27 averaged only 0.3 larva per 30 row feet but one of the fields needed treatment. In Richmond County (26 fields, 736 acres), the number of larvae per 30 row feet was 0.5. Larvae averaged 450 per 30 row feet in 3 fields in Northumberland County. In Westmoreland County where larvae ranged 2-4 per foot of row by August 31, approximately 1,000 acres had been scheduled for treatment. In Isle of Wight County, an estimated 5,000 acres had already been treated. By September 10, two fields in Northumberland County averaged 11 larvae per 30 row feet and in Lancaster County 4 fields (108 acres) averaged 10.2 larvae per 30 row feet. Damage in most coastal counties had been severe but spotty. Larval populations were estimated at 2-5 times heavier than in 1975, confirming predictions made in August. Estimates of acreage treated in 4 areas were as follows: Virginia Beach 10,000 acres, Surry County 3,000-5,000 acres, Caroline County 1,300 acres, and Middlesex County 2,000 acres. By the week ending September 17, damage had peaked. Damage decreased rapidly after September 23 as soybeans matured and cool, wet weather moved in.

Corn earworm and FALL ARMYWORM (Spodoptera frugiperda) larvae were very heavy in ears of late-planted corn in several areas of DELAWARE during late August and September 1976. Light trap catches peaked at an average of 120 per night during the last week of August, considerably above the long-term mean peak of 50 per night which usually occurs in early September. Larvae exceeded economic threshold levels during the second week of September. Controls were generally effective in most areas. Heavy blacklight catches of adults in Suffolk County, NEW YORK, indicated a potential for heavy infestations in 1976. The first adults in an Ontario County blacklight trap were caught during the week ending September 18, 3 weeks later than in 1975. The first adult was caught in a blacklight trap in Plymouth County, MASSACHUSETTS, June 23, 1976. Adults were beginning to appear in the eastern counties by July 21. Adults in light traps continued to increase slowly through August. Up to 23 adults were captured the week of August 25 in the southeastern counties.

Corn earworm adults migrated into southern NEW HAMPSHIRE during the summer of 1976, as usual. The first adults from light traps were recorded August 1 at Dover and August 8 at Salem. After Hurricane Belle passed through the southern area in August, light trap collections increased sharply. Larvae hatched by August 20 and infestations, particularly in sweet corn, were reported throughout the southeastern area. Infestations averaged 20-30 percent in some sweet corn fields in Strafford and Rockingham Counties.

CORN LEAF APHID (*Rhopalosiphum maidis*) populations were light to heavy in the late summer of 1976 in the Palo Verde Valley area, Riverside County, CALIFORNIA. Infestations were noted in some spring barley fields in Beaver and Millard Counties, UTAH, in 1976. A field of popcorn in Cache County was heavily infested. By harvest time, lady beetles, minute pirate bugs, syrphid larvae, and other predators had this outbreak under control. Treatments were continually applied during most of July in Dona Ana, Luna, and Hidalgo Counties, NEW MEXICO, in 1976. Some fields showed reddening with up to 30 colonies per leaf during this period. These controls were probably directed at what was thought to be GREENBUG (*Schizaphis graminum*) and when successful reductions were not obtained, many were concerned because of "greenbug resistance." Continued buildups of corn leaf aphid, especially in Chaves County, disguised greenbug populations by mid-July. Subsequent controls tended to reduce parasitoid populations, releasing subsequent greenbug populations in the area.

Corn leaf aphid populations were light to moderate throughout TEXAS until early July 1976 when increases were noted in the Panhandle, High Plains, and Trans-Pecos areas. Up to 400 per colony was noted in the Trans-Pecos area within 14 days. Populations gradually decreased with little or no damage anywhere. Infestations were present in sorghum from early May through August 1976 in OKLAHOMA. Heavy infestations were present in scattered fields in the west-central area by early June and in most other areas from late June to early August. Infestations were moderate to heavy on sorghum in NEBRASKA in 1976. Populations averaged 500-600 per plant in most sorghum fields in the central, south, east, and southeast districts, the last half of July, causing little or no economic damage. The usual confusion between this species and GREENBUG (*Schizaphis graminum*) caused some fields to be unnecessarily treated. Corn leaf aphid in ILLINOIS was first reported from field corn during the last week in June 1976. Infestations ranged 5-10 percent in occasional fields by July 9. During the second week of July, infestations of 20-30 percent were reported from some northern and central area fields. Infestations remained light and scattered for most of the rest of the season. The estimated dollar loss was about \$140,000, including control costs. Benefits of treatment on 8,000 acres for this pest were about \$60,000 over and above dollar losses from control costs and damage. The damage potential for corn in 1977 was impossible to predict.

Individual specimens of corn leaf aphid were noted on about one percent of the corn plants in the southern counties of WISCONSIN by July 1, 1976. By July 8, some fields were found with 80 percent of the plants infested with small numbers of aphids, but on most fields about 5 percent of the plants had colonies of fewer than 10 aphids. By July 22, several southern and west-central corn fields had colonies of 500+ aphids on 20-70 percent of the plants. Honeydew and a sooty mold covered the leaves in many fields. A general population decrease began about August 1, although late-maturing fields continued to harbor heavy populations (500 aphids on 10 percent of the plants) until mid-August. Light residual populations persisted until autumn frosts. Populations in INDIANA on grain corn were light again in 1976. Susceptible corn at the appropriate maturity levels averaged 581 aphids per stalk in 1976, about two-thirds of the 1975 average (935 aphids), in a Tippecanoe County field. During the fall corn insect survey, 25 percent of the stalks were infested: 20 percent lightly,

4 percent moderately, and one percent heavily. Fields in the northern one-fourth of the State were twice as apt to be infested, (1.5 times in the remainder of the north) as in the southern one-half of the State. Except for a few fields in Vermillion County with easily observed populations, sorghum was almost uninfested, an unusual situation. Alates were noted on corn leaves in MAINE July 18, 1976. Counts ranged up to 300 per tassel by July 27, peaked about August 14, and collapsed before August 25. This earlier collapse and lighter populations than in the previous 8 years were believed due to many heavy rains and earlier fungal infections. Heavier populations were noted in about 30 percent of the fields but were lighter than in previous years.

GREENBUG (*Schizaphis graminum*) infestations in wheat were light in January 1976 in Imperial Valley, Imperial County, CALIFORNIA. Some heavy infestations were noted in Palo Verde Valley, Riverside County, in March and April. Populations were generally moderate on milo; treatment in the Sacramento Valley began in June. Light infestations on milo in the Imperial Valley began in August and increased to heavy numbers, particularly in the Palo Verde Valley, Riverside County. Populations continued to increase on eastern OREGON cereal crops for the third consecutive year during 1976. This heavier and more widely distributed population resulted in the treatment of a record 90,000 acres of early seeded wheat and barley in the 5 counties bordering the Columbia River. Infestations developed earlier and were more serious in the eastern counties with treated acreage decreasing westward. An estimated 30,000 acres were treated in Umatilla County. Serious infestations were generally present in irrigated fields around Hermiston in early planted, summer-fallowed fields located between Pendleton and Homan and in higher elevation plantings in the foothills of the Blue Mountains south of Pilot Rock. An estimated 10 percent of the early fall-seeded wheat in Morrow County, between 25,000-30,000 acres, received treatment; most of this wheat was planted in September and October. If the greenbugs present in early December successfully overwinter as in 1975, damage could result during the spring of 1977. The heaviest populations in Gilliam County occurred in the Condon area but problems occurred throughout the county in both early and late-seeded fields with 15,000-18,000 acres receiving treatment. Infestations were present in many plantings in Sherman County, being noted as far south as Kent. Most of the 4,000 acres treated were located in the north end of the county. A similar pattern of infestation occurred in Wasco County with most treated acreage located near The Dalles (Columbia District and Tygh Ridge). An estimated 2,000-3,000 acres were treated countywide. Infestations in cereals in the spring or early summer of 1976 were almost nil in WASHINGTON. Infestations were encountered on all early fall-planted small grains, but populations in most regions from September to November were usually less than one per foot of row. Economic infestations, up to 500 (frequently up to 1,500) per foot of row combined with an APHID (*Rhopalosiphum padi*) were noted in parts of Lincoln, Douglas, Klickitat, Walla Walla, and Grant Counties. Greenbug populations on small grains in Churchill and Pershing Counties, NEVADA, were lighter than in 1975 and although no controls were applied specifically for it, some suppression occurred when treatments were made for ENGLISH GRAIN APHID (*Macrosiphum avenae*). Greenbug populations became economic on small grains in November 1976 in Power County, IDAHO. Infestations were light in Nez Perce, Latah, and Benewah Counties.

Overwintering greenbug populations averaged 1-3 per linear foot on wheat in Clovis and Curry Counties, NEW MEXICO, in 1976. Except for some "hotspots" in the southeastern area, no economic populations were seen until late February when barley at Las Cruces, Dona Ana County, showed some yellowing. In these fields, populations ranged up to 15-18 per linear foot. By March, yellowing was common on wheat and barley in Dona Ana and Luna Counties where up to 40 per linear foot were noted. Populations were up to 50 per foot in Quay and Roosevelt Counties by June 15.

Greenbugs on small grains at the beginning of 1976 in TEXAS were very light but quickly increased to 150-550 per row foot in the Rolling Plains, High Plains, and north-central counties by January 16. By January 30, damage was economic in the south-central, gulf coast, and Winter Garden areas. Populations peaked at 1,000+ per row foot in several Panhandle counties in early April with some counts at 2,000+ per row foot. Populations decreased dramatically during May in all areas due to parasites and predators. Light populations continued for the remainder of the season. Light populations on wheat in the Panhandle in October increased slightly through December. Populations on corn and sorghum were light to very light in the entire southern area from April 1 until June 25 when estimates reached 2,000 per leaf in Bell County. By July 9, populations in the north and Trans-Pecos areas had rapidly increased with populations at 1,000 per plant common. Heavy damage and light parasitism were reported across the High Plains, Rolling Plains, and the Panhandle on July 30. Populations decreased sharply across the north in mid-August with light populations reported after that time. Populations were lighter in the Trans-Pecos area than in the Plains.

Greenbug infestations were present in scattered wheat fields in many of the counties in the western half of OKLAHOMA at the beginning of 1976. Populations ranged 100-1,000 per row foot in many fields during January and increased by February 1. Counts of 1,000-4,000 per row foot were reported in some fields during the month. Parasite activity by early March slowly reduced infestations in most areas, but isolated heavy infestations were reported as late as the end of March. Light populations continued into early May. About 3,000,000 acres were reported treated as the weather permitted during January and February and into early March in some areas. A few instances of poor control were reported in the southwest counties in early February. Fall activity was first reported in mid-September in Texas County. By the end of October, scattered light infestations were present in most areas with counts in some early planted fields ranging 10-25 per row foot. Populations continued light through November. Greenbug infestations on sorghum were first reported in Muskogee County the third week of May. Heavy populations (5-50 per plant) damaged and even killed 2 to 6-inch sorghum in the east-central counties and then in the northeast, north-central, and northwest areas through mid-June. CORN LEAF APHID (*Rhopalosiphum maidis*) and YELLOW SUGARCANE APHID (*Sipha flava*) were also present in most fields and contributed to the damage. Many fields were treated; some in Wagoner County had to be treated 3 times due to rapid reinfestation. Populations increased in all areas during late June and early July and heavy infestations were common in the west-central and Panhandle areas during late July and early August. Parasites reduced infestations in many areas in the southwest counties and contributed to control in other areas by early August. Isolated moderate to heavy infestations continued into early September in some areas.

Greenbugs infested seedling sorghum for the first time in northeast ARKANSAS in early May 1976. Counts ranged up to 10 per plant. Damage was difficult to evaluate due to frost damage. Infestations were favored by dry weather. Greenbug-resistant varieties did not appear to be resistant in the seedling stage. Greenbugs, carrying over from 1975, damaged wheat in KANSAS during the mild winter and spring of 1976, principally in the following counties: Butler, Cowley, Harper, Barber, Sumner, Sedgwick, Kiowa, Haskell, Seward, Clark, Grand, and Stevens. Significant buildups were first noted in the south-central area during the second week of February and in the southwest by early March. Infestations were decreasing in the affected areas from early to mid-April due to treatments, parasitism by *Lysiphlebus testaceipes* (an aphidiid wasp), and predation by lady beetles. Heavy flights caused an outbreak in seedling sorghum during late May and early June. Treating was widespread and some fields

were destroyed by greenbug. In some cases, resistant wheat varieties, planted by many Kansas growers, were seriously damaged. After the heavy flight period, field populations decreased rapidly to light levels, probably due to hot, dry winds. Late season buildups on sorghum first occurred in the southwest area during the third week of July. Threatening to economic infestations were occasionally encountered in the north-central area and throughout the western area during late July. Infestations in all affected areas were generally decreasing due to treatments, parasitism by L. testaceipes, and predation by lady beetles by mid-August.

Greenbugs averaged one per 30 sweeps in Thayer County, NEBRASKA, wheat April 8, 1976. Heavy seedling infestations were first reported in grain sorghum in the southeast, south, and east crop districts June 4. Seedling infestations increased through mid-June when populations stabilized temporarily at 25-30 per plant or decreased slightly in some fields due to hot, dry winds. Greenbugs began to increase about July 5 with rapid increases in most fields by July 20. Populations peaked at 600-2,000 per plant in most areas the last week of July and the first week of August. The first greenbug parasitism by Lysiphlebus testaceipes was noted in Merrick County July 5. In one field, parasitism was noted in about 0.4 percent of the greenbug population. Parasites eliminated greenbugs in most fields by August 10-15 in most districts. One corn stand in Clay County, planted in wheat stubble, had 300 greenbugs per plant August 4. Controls were needed for greenbug infestations in scattered wheat fields in Lancaster County in October. Populations remained light on sorghum in SOUTH DAKOTA in 1976; only an occasional field needed treatment. Infestations rarely reached economic levels on either winter or spring wheat. Populations in 1976 in Champaign County, ILLINOIS, were heavy enough under trees in some lawns to kill the grass. Damage to bluegrass lawns in 2 isolated areas of OHIO in 1976 was severe. Lawns in the Columbus and Dayton areas (Franklin and Montgomery Counties) had light orange portions due to heavy feeding by June 23. This condition persisted in open areas and under trees through mid-July.

POTATO LEAFHOPPER (Empoasca fabae) infested alfalfa throughout ILLINOIS by the first week in June 1976. Populations increased rapidly to 300-400 per 100 sweeps in many fields but did not cause any damage. The estimated dollar loss from infestations was approximately \$190,000 including control cost. Benefits from treatment of 31,000 acres were estimated at \$157,000, over and above dollar losses from control costs and damage. The first migrants into WISCONSIN were found on alfalfa in Lafayette County, May 11, 1976, and additional finds were made in Sauk and Dodge Counties the following week. By late June nymphs were observed on Grant County alfalfa, and adults in the southwest and south-central counties ranged 4-44 per 100 sweeps on second-growth alfalfa. Populations ranging 2-5 per sweep on alfalfa were observed in early August in the northwest counties and throughout the summer statewide, but the effects of leafhopper feeding were masked by drought symptoms. Leafhopper populations were lighter than those observed in 1975 when a high number of fields were treated in the southern area for control. Adults averaged 1.55 per sweep and nymphs 1.33 per stem on first-growth alfalfa in Warren County, KENTUCKY, during July. Nymphs averaged 0.25 per stem and adults 0.16 per sweep on early second growth. On late second growth, nymphs averaged 0.15 and adults 1.16. As the month progressed, nymphs generally decreased but adults were relatively constant on the same stages of alfalfa growth. Adults averaged 1.2 per 20 sweeps of soybeans in Fayette County in mid-September 1976.

Peak populations of potato leafhopper during 1976 developed later in the season than in 1975 on alfalfa throughout INDIANA. As a result, only the third growth in August generally required controls. Early harvesting was sometimes necessary in the second growth, especially where PEA APHID (Acyrtosiphon pisum) was heavy.

During the entire season in more than 60 northern and southern district fields regularly surveyed, potato leafhoppers seldom exceeded 2 per sweep in Indiana. Adults were first detected on alfalfa in OHIO in the west-central area May 10, 1976. Populations remained light through the first half of June (adults 0-28 per 100 sweeps) but sharply increased the third week of June. Adults ranged 16-280 per 100 sweeps in the northern area June 21. Noticeable damage was widespread and chemical controls were being applied by that date. Nymphs were first collected in the west-central area June 29. Heavy populations on untreated second-growth alfalfa yellowed most fields by the first week of July. In the last half of July, populations on third-growth alfalfa peaked, averaging slightly less than the economic threshold of one adult per sweep with light to moderate damage symptoms. Populations decreased during August probably due to frequent rains and cooler than average temperatures. In limited drought areas of the west-central and south-central areas, damage persisted into October. Populations and damage in VIRGINIA were as heavy in 1976 as in 1975, the heaviest in 12 years. Activity was later than in 1975. Infestations averaged 14.8 per 20 sweeps in 8 untreated plots of peanuts.

Most areas in WEST VIRGINIA had little or no damage by potato leafhopper in 1976 and populations were light. Heavy damage was noted in some untreated fields in the northern part of the State. Cool spring weather in PENNSYLVANIA in 1976 kept activity relatively light on alfalfa. Economic thresholds, 0.5 per sweep, were reached statewide in early June. Populations increased up to 10 per sweep in the central counties in early July and caused moderate to heavy damage in most areas. Yellowing was as heavy as 50 percent in some untreated fields. Populations and damage were heaviest in the southern counties. By late August, populations had decreased rapidly to insignificant levels and only about 5 percent of the late alfalfa was yellowed. The first collection of the 1976 season in NEW YORK occurred on June 10 in Tompkins County. Activity increased significantly on potatoes, alfalfa, and dry beans the week of August 2 in this county. Activity ranged moderate to extensive on second-growth alfalfa.

Heavy infestations of SPOTTED ALFALFA APHID (*Therioaphis maculata*), 50 per stem, developed on 1 to 6-inch hay alfalfa in southern Nye County, NEVADA, in late March and early April 1976. Economic populations were noted on seed alfalfa in 2 areas each in Humboldt and Pershing Counties. The first specimens were observed in the latter areas in late June, and by mid-July had increased to 70+ per sweep in some fields, with most treatments applied in July except for one field in Humboldt County which required controls in early August. More than 3,000 acres of mostly seed alfalfa were treated during the year. Infestations were the most damaging to alfalfa seed and forage fields in west Millard County, UTAH, in 1976. Populations of 75-100 per square foot damaged newly planted alfalfa in Eddy County, NEW MEXICO, in late January 1976. Elsewhere, infestations were light. Infestations were light to moderate in alfalfa throughout 1976 in most of OKLAHOMA. Scattered heavy infestations were found in untreated alfalfa in Garvin County in late February and in the southwest counties in late March. Populations in ARKANSAS were light on alfalfa in early September 1976 for the first occurrence of this species in the State in 2-3 years. Infestations averaged 2-3 per sweep in April 1976 in scattered alfalfa fields in Richardson, Otoe, Johnson, Lancaster, and Gage Counties in NEBRASKA. Populations were noted at 20 per sweep in one Greeley County field May 26. No problems were encountered on seedling alfalfa in August and September.

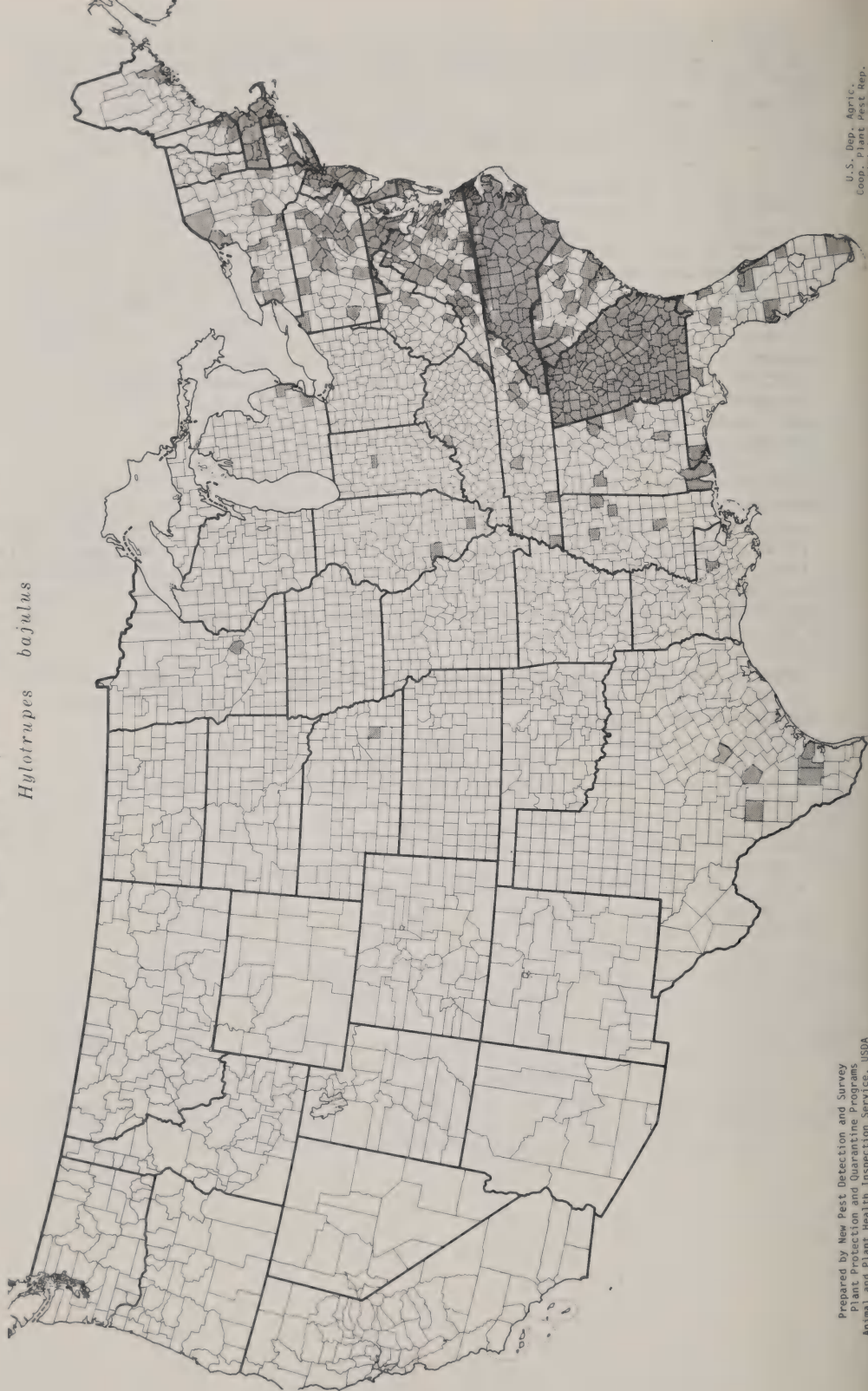
TOBACCO BUDWORM (Heliothis virescens) was the main pest of tobacco in FLORIDA in 1976, causing almost half of the insect losses to flue-cured tobacco and more than half to shade grown. Yield loss totaled \$675,000. Although usually the most important insect pest of tobacco in SOUTH CAROLINA, it was of limited importance in 1976. Infestations were probably the lightest in 10 years. Tobacco budworm infestations peaked in 13 percent of the tobacco fields sampled at the threshold level in NORTH CAROLINA. The heaviest infestation detected was 20 percent of the plants. Larvae were first observed in tobacco fields in TENNESSEE during the week ending July 11, 1976. Populations continued to increase during June. During the week ending July 2, populations in 22 fields were at or above control levels in 16 fields the week ending July 2 and in 10 fields the week ending July 9. Only an occasional field had populations above control levels during the rest of the season. After July 16, budworm populations were found only on blooming and suckering tobacco. Overall damage to tobacco within the State in 1976 was considered to be minimal. Properly applied controls were effective. H. virescens infestations constituted nearly 100 percent of the Heliothis spp. found on watermelon, cantaloupe, and tomato in southeast ARKANSAS in late October 1976. This species and BOLLWORM (H. zea) were up to 2-3 per pod of field peas in October 1976 in the southeast area. Of the species involved, H. virescens constituted 96 percent.

TOBACCO HORNWORM (Manduca sexta) larvae caused very little damage to tobacco in VIRGINIA during 1976. The most important infestations in Nottoway were 3 per 50 plants August 3, and 4 per 50 plants on late-maturing tobacco. Populations of one per 50 plants were observed as early as June 9 in Nottoway County. Tobacco fields monitored in Dinwiddie, Charlotte, and Patrick did not have more than one hornworm per 50 plants at any time during the season. Most hornworms collected during June and September were parasitized by Apanteles congregatus (a braconid wasp).

TOMATO HORNWORM (Manduca quinquemaculata) populations were light to moderate on tomatoes throughout CALIFORNIA in 1976. Counts were heaviest in August; treatments were applied.

Distribution of Oldhouse Borer

Hylotrupes bajulus



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 25, 1937

U.S. Dep. Agric.
Geographical Rep.
2(19):1103, 1937

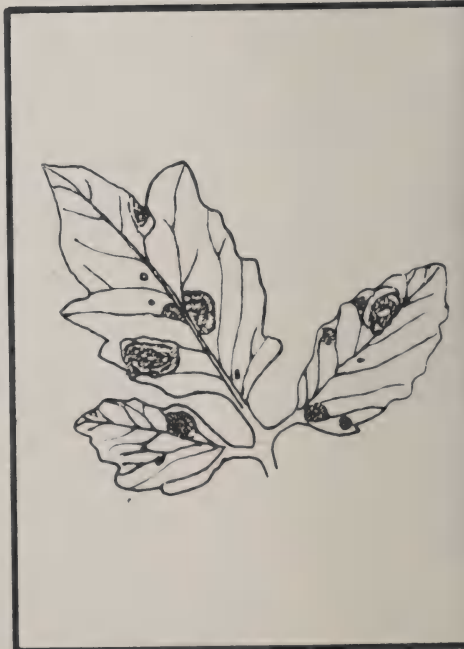
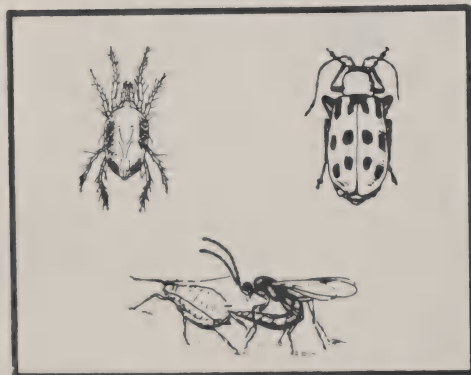
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VOL. 2 NO. 10

Ed. Myska

March 11, 1977

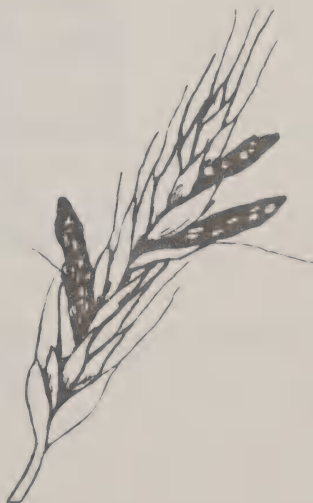
Cooperative **PLANT PEST REPORT**

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**Animal
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Health
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**U.S.
DEPARTMENT
OF AGRICULTURE**



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

Some heavy counts of ARMY CUTWORM in Nevada. (p. 103).

Surveys for additional infections of SOYBEAN RUST, new disease on soybeans in the Western Hemisphere, negative in Puerto Rico. (p. 104-105).

Detection

● New APHID for North America in Washington. (p. 104).

● New EUCNEMID BEETLE for the United States in Hawaii, not known to occur in continental United States. (p. 105).

New State records include EUROPEAN FRUIT SCALE in Oregon (p. 104), CROWN GALL in Tennessee (p. 104), an APHID in Hawaii (also new host record, p. 105), and WESTERN BEAN CUTWORM in Oklahoma (p. 114).

Some First Occurrences of the Season

ALFALFA CATERPILLAR and IMPORTED CABBAGEWORM eggs in Alabama. CLOVER MITE in Delaware. GYPSY MOTH larvae in California.

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Summary of Pest Conditions in the United States - 1976

Corn, Sorghum, Sugarcane. (p. 108-121).

Small Grains. (p. 120-123).

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Distribution of Southern Corn Rootworm (map). (p. 118).

Grasshopper Adult Survey Fall 1976. Map. Centerfold.

Identification of Adults of the Three European Species of Arhopalus--rusticus rusticus, ferus, and syriacus (Coleoptera: Cerambycidae) (p. 127-130).

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Grasshopper Adult Survey Fall 1976. Centerfold.	

SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (*Euxoa auxiliaris*) - NEVADA - Counts and damage heavy on 150 acres of winter wheat in Elko, Elko County. Counts per square yard by county: Elko 100+ on lawns at Elko with large numbers crawling up sides of structures, and 25+ on 500 acres of range at Spring Creek; Lander averaged 1-2 on range in Reese River. Infested rangeland in Paradise Hill, Humboldt County. (NV Coop. Rep.). TEXAS - Maximum counts of one per 5 row feet of small grains in Wichita County February 21. (Boring). KANSAS - Larvae light (less than one per square foot), clipped wheat plants (2 inches; 2 tillers) in Kiowa County near Greensburg week ending February 25. (Bell).

GREENBUG (*Schizaphis graminum*) - TEXAS - Maximum counts per row foot of wheat by county February 7-23: Hall, Sherman, and Swisher up to one; Briscoe, Childress, and Hale up to 5; and Collingsworth up to 15. (Daniels). Maximum counts per row foot of small grains by county February 21: Archer, Baylor, Childress, Hardeman, Knox, Wichita, Wilbarger, and Young up to 25; and Fisher up to 154 in spots and mean maximum of 100 in a few fields. (Boring). OKLAHOMA - Counts per row foot by county: Washita 0-6 in most wheat, averaged 50 in few fields, and up to 500 in spots; Greer, Jackson, Kiowa, and Tillman up to 215 in few isolated fields, 25-50 in most fields in these counties and Harmon County; Caddo 5-20; Grady 5-20; Woodward 0.5-15; Woods 1-4; Alfalfa 0-2; Grant 0-2; Kay 0-1; and Noble 0-2. Dead spot in Comanche County. (OK Coop. Surv.).

SMALL GRAINS

INSECTS

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Counts per row foot by county: Jackson averaged 400 in spots in one wheat field, but ranged 0-40 in most fields; Washita up to 100 in few scattered fields; northwest and north-central counties 0-20, very light. (OK Coop. Surv.).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (*Hypera postica*) - OKLAHOMA - Infested terminals averaged about 0.5 percent in alfalfa in southern edges of Jackson and Tillman Counties. Eggs averaged 9 per square foot in samples collected February 25 in Payne County. (OK Coop. Surv.). KENTUCKY - Egg averages per square foot in various alfalfa fields by county: Shelby 2.0, 2.8, 3.2, 4.4, and 8.4 on February 4; Larue 24 on February 9; and Lincoln 9.2, 9.6, 16.0, and 19.6 on February 21 and 23. (Christensen et al.).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - CALIFORNIA - Larvae 10-12 per sweep in Cuyama Valley, Kern County. Lighter in San Joaquin Valley area. (CA Pest Rep.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ALABAMA - Occasional adult in Lee County laying eggs on small clover plants. (McQueen).

BLUE ALFALFA APHID (*Acyrthosiphon kondoi*) - CALIFORNIA - Heaviest counts on alfalfa in Kern County for this time of year. Presence of *A. kondoi* without *A. pisum* was unusual. (CA Pest Rep.). NEVADA - This species and *PEA* APHID (*A. pisum*) averaged 25 per stem on alfalfa crowns at Lathrop Wells, Nye County, week ending February 18. Will be treated when weather favorable. (NV Coop. Rep.).

COLE CROPS

INSECTS

AN APHID (*Lipamyzodes matthiolae* (Doncaster)) - WASHINGTON - Collected on *Cardaria draba* (hoary cress) at Harrah, Yakima County, by L. Fox, November 12, 1976. Determined by D. Hille Ris Lambers. (Fox). New North American record. Known from Europe on crucifers. Probably noneconomic. (Stoetzel).

IMPORTED CABBAGEWORM (*Pieris rapae*) - ALABAMA - Occasional adult in Lee County laying eggs on old turnip and collard plants. First adults seen since December 1976, usually noted every week during winter in this area. (McQueen).

GENERAL VEGETABLES

INSECTS

AN ACARID MITE (*Tyrophagus dimidiatus*) - CALIFORNIA - Ranged 3-4 per spinach leaf at Sanger, Fresno County. Treatment necessary, but normally not a problem in this area. (CA Pest Rep.).

DECIDUOUS FRUITS AND NUTS

INSECTS

EUROPEAN FRUIT SCALE (*Quadraspidiotus ostreaeformis*) - OREGON - Infested Newton apples collected near Parkdale, Hood River County, by R.W. Zwick during January and February 1977. Determined by R.J. Gill. This is a new State record. Present in area for several years. (Westcott).

FOREST AND SHADE TREES

DISEASES

CROWN GALL (*Agrobacterium tumefaciens*) - TENNESSEE - Found on *Cornus florida* (dogwood) at Winchester, Franklin County, February 17, 1977. Collected and determined by R. Sauve and J. Bogard. This is a new State record. (Gordon).

HOUSEHOLDS AND STRUCTURES

INSECTS

CLOVER MITE (*Bryobia praetiosa*) - DELAWARE - First of season in New Castle County week ending February 25. Infestations in homes unusually heavy this year. (Burbutis).

FEDERAL AND STATE PROGRAMS

DISEASES

SOYBEAN RUST (*Phakopsora pachyrhizi* Sydow) - PUERTO RICO - Observed on *Phaseolus coccineus* (scarlet runner bean) at Adjuntas in Limani Valley by N.G. Vakili in April 1976. Observed on nearby plots of *Glycines max* (soybean) in June; all cultivars infected by August. Infected nearby *Phaseolus vulgaris* in mid-July; nearly all lines moderately to severely infected by late August. Determined by G.B. Cummins. First report of genus on soybeans in Western Hemisphere and on scarlet runner bean. Serious disease of soybeans in Far East. Infects several genera of legumes in east half of Asia and Australia. (Plant

Dis. Rep. 60(12):995-999, 1976). Additional surveys of soybeans negative to date. (PPQ).

INSECTS

GYPSY MOTH (Lymantria dispar) - CALIFORNIA - Forty larvae hatched from one of 2 egg masses caged in sunny location during 3 days last period at San Jose, Santa Clara County. (CA Pest Rep.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Activities delayed slightly by rain, but trapping activities on schedule in Los Angeles County. Status of treatment by area week ending March 4: Hollywood fifth treatment completed; central Los Angeles sixth treatment completed; La Crescenta seventh treatment completed; Santa Monica seventh treatment 30 percent completed; Pico Rivera eighth treatment 30 percent completed; and Inglewood ninth treatment 15 percent completed. (CA Pest Rep.).

SCREWWORM (Cochliomyia hominivorax) - No cases reported from continental United States up to February 19. Total of 74 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 753 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 71,431,900, all in Texas. Total of 136,236,100 sterile flies released within Barrier of Mexico. (Vet. Serv.).

HAWAII PEST REPORT

New Records - One adult of a EUCNEMID BEETLE (Fornax samoensis Fleutiaux) collected by C. Kendricks, February 20, 1973, and second adult collected by Terashima (no initials), December 7, 1976, both at Manoa, Oahu. Determined by J.W. Beardsley. This is a new United States record, not known to occur in the continental United States. Originally described from Samoa during 1924 and 1925. Larvae of eucnemid beetles occur in rotting wood and under bark. Adults are generally cryptic. (Beardsley).

Specimens of an APHID (Rhopalosiphoninus latysiphon) first collected from Metrosideros collinus (ohia) roots in Keamoku Lava Tube at Keauhou Ranch (1,800-meter elevation), Hawaii Island, by K. Sattler and F.G. Howarth, July 10, 1976. Additional specimens from ohia tree roots in caves at Bird Park, Hawaii Volcanoes National Park (1,200-meter elevation), Hawaii Island. Determined by V.F. Eastop. This is a new State record and a new host record. (Howarth).

DETECTION

NEW NORTH AMERICAN RECORDS

INSECTS

AN APHID (Lipamyzodes matthiolae (Doncaster)) - WASHINGTON - Yakima County. (p. 104).

NEW UNITED STATES RECORD

INSECTS

A EUCNEMID BEETLE (Fornax samoensis Fleutiaux) - HAWAII - Oahu Island. (p. 105).

NEW STATE RECORDS

DISEASES

CROWN GALL (Agrobacterium tumefaciens) - TENNESSEE - Franklin County. (p. 104).

INSECTS

AN APHID (Rhopalosiphoninus latysiphon) - HAWAII - Hawaii Island. (p. 105).

EUROPEAN FRUIT SCALE (Quadraspidiotus ostreaeformis) - OREGON - Hood River County. (p. 104).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - OKLAHOMA - Cimarron County. (p. 114).

CORRECTIONS

CPPR 2(7):60-61 - GYPSY MOTH males were trapped in other States besides California.

LIGHT TRAP COLLECTIONS

CALIFORNIA - Bellota, 2/22-24, BL - BLACK CUTWORM (Agrotis ipsilon) 2, VARIEGATED CUTWORM (Peridroma saucia) 6. Stockton, 2/22-24, BL - Black cutworm 2, variegated cutworm 15. FLORIDA - Gainesville, 2/24-3/2, BL - ARMYWORM (Pseudaletia unipuncta) 1, CABBAGE LOOPER (Trichoplusia ni) 1, GRANULATE CUTWORM (Feltia subterranea) 7.

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff Plant Protection and Quarantine Programs, USDA

	<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Phylllosticta</u> sp. a leaf spot Det. F. Pollack	imperfect	on leaves of bromeliad plants	Mexico	Brownsville	TX
<u>Monoctonus</u> sp. a cerambycid beetle Det. D.M. Anderson	larval	in wood pallets of bolts	Spain	Savannah	GA
<u>Nasutitermes</u> sp. a termite Det. D. Smith	all	in lumber	South America	Savannah	USA
<u>Saperda</u> sp. a cerambycid beetle Det D.M. Anderson	larval	in wood dunnage	Japan	San Francisco	CA
<u>Stenomoma catenifer</u> Walsingham avocado seed moth Det. R.P. Higgins	larval	in avocados from baggage	Ecuador	Miami	FL
<u>Trogoderma granarium</u> Everts khapra beetle Det. F. Krim	adult, larval	on bales of sheepskins	Sudan	New York	USA
<u>Helix aperta</u> Born a helioid snail Det. D. Walters	adult	as food from baggage	Italy	Kennedy Airport	USA
<u>Otala</u> sp. a helioid snail Det. R. Munkittrick	adult	on cargo container van	Spain	Miami	FL

SUMMARY OF PEST CONDITIONS IN THE UNITED STATES - 1976
(Continued from page 99)

CORN, SORGHUM, SUGARCANE

Highlights:

The corn crop in Nebraska was threatened by overwintering populations of EUROPEAN CORN BORER. Several corn fields in South Dakota were totally infested. Infested plants and borers per 100 plants decreased in North Dakota. Heavier populations in Iowa only caused sporadic damage to field corn. Poorly timed treatments in New Hampshire caused 95+ percent infestations. Second generation infestations of SOUTHWESTERN CORN BORER in corn were heavy in Texas and Cimarron Counties of Oklahoma. FALL ARMYWORM infestations were very heavy in some areas of Oklahoma and economic in the southern counties of Mississippi. Unusual BEET ARMYWORM infestations were noted on corn in Florida. BLACK CUTWORM damage was more widespread in Iowa. The estimated dollar loss in Illinois due to emergency treatment and yield loss was about \$3 million. Damage was severe in scattered corn fields of North Carolina. Severe infestations on corn throughout New York caused many fields to be replanted. More WESTERN BEAN CUTWORM damage was reported in Nebraska. STALK BORER infestations were unusual in Indiana and caused replanting of no-till corn in Pennsylvania. CORN ROOTWORMS seriously damaged corn pollination in Idaho and severely pruned corn roots in Nebraska. Problems were severe on field corn in Iowa. Populations increased in 5 districts in Minnesota. Western corn rootworm was heavy in many corn fields in Wisconsin; severe problems are expected in 1977. Northern and western corn rootworms caused about \$40 million loss in Illinois. Western corn rootworm extended its range by 15 counties in Indiana. Heavy northern corn rootworm populations in Pennsylvania may indicate important infestations in 1977. BILLBUGS were of major concern to corn growers in the southern Coastal Plain and Tidewater areas of North Carolina. CHINCH BUGS were unusually heavy and damaging in eastern Kansas and southeastern Nebraska. YELLOW SUGARCANE APHID and other aphids caused much damage in Oklahoma. Populations were heavier and more widespread on sorghum in Arkansas and Kansas. TWOSPOTTED SPIDER MITE problems to field corn in North Carolina have expanded from the northern coastal counties. Controls were needed for field corn in Virginia. This mite and BANKS GRASS MITE infestations were particularly widespread and damaging to corn in 4 districts of Nebraska.

DISEASES

Spotty outbreaks of COMMON MAIZE RUST (*Puccinia sorghi*) were observed in Roosevelt County, NEW MEXICO, during early September 1976.

INSECTS

EUROPEAN CORN BORER (*Ostrinia nubilalis*) larvae, about one inch long by August 13, 1976, caused problems in sweet corn in Yellowstone County, MONTANA. By September 24, the larvae had damaged about 25 percent of the corn in one field and up to 50 percent in another. Very heavy overwintering populations in NEBRASKA threatened the 1976 corn crop. The first adults of the season began emerging May 9 in Dixon County. Emergence was estimated at about 20 percent in York, Merrick, and Fillmore Counties; 10 percent of the females had mated by June 3. Emergence was estimated to be 70 percent in Hall County on June 8. Subsequent hot, dry winds severely reduced the potential for heavy

first generation O. nubilalis by increasing adult mortality, decreasing egg laying, and desiccating eggs and young larvae. Damaged corn was noted in the earliest planted fields but few needed treatment. Infested plants averaged 30 percent in Merrick, Hall, York, and Fillmore Counties June 21; corn was 28-45 inches tall. Infestations ranged 0-75 (averaged 6-8) percent in 52 fields in Wayne, Stanton, Cedar, Knox, and Pierce Counties June 30. First generation pupation was underway and some adults began appearing at blacklight traps in the northeast and central districts July 21. In Dixon County, 800+ adults were trapped August 2 and 3. Infested plants ranged 0-24 percent in late-planted corn in Antelope, Pierce, and Cedar Counties August 10. At the same time, adult catches decreased in Dixon County. Second generation infestations ranged up to 26 percent in Hall, Buffalo, Adams, Merrick, and Nance Counties August 6-10. As indicated by fall surveys, infestations were much lighter than in 1975. The heaviest infestations were found in the east and central districts where borers averaged 3.2 and 2.1 per plant, respectively. Good harvest conditions allowed growers to remove the crop before significant losses due to ear droppage and stalk breakage occurred.

First brood infestations in SOUTH DAKOTA were heavy in irrigated corn in Clay, Union, Turner, and Lincoln Counties in 1976. Several fields were 100 percent infested with up to 20 egg masses per plant. Borer survival in corn with less than 20-inch extended leaf height was common. First brood resistance appeared to be minimal. Up to 20 bushels per acre were lost in several fields. The fall survey in the southeast district showed 51 percent of the plants infested. Infestation ranged up to 75 percent in irrigated corn. Winter survival in NORTH DAKOTA averaged 75 percent in untilled corn in Cass, Dickey, Ransom, Richland, and Sargent Counties in 1976. The fall survey showed a decrease in these counties from 34 borers per 100 plants in 1975 to 25 borers per 100 plants in 1976. The percent of plants infested also decreased from 56 percent in 1975 to 39 percent in 1976.

European corn borer was heavier in 1976 than in 1975 in IOWA but caused only sporadic damage to field corn. The first adults were detected during the week ending June 11. Adults peaked during the second week in June. Egg laying peaked about June 13. The first reports of damage to field corn were noted during the week ending June 25 in Ida, Plymouth, Polk, and Woodbury Counties. Larvae in the second and third instars infested 2-80 percent of the stalks. Heavy rains in the central area decreased the remaining adult population. Larvae, 50 percent full grown, were reported from Davis, Henry, and Woodbury Counties during the first week in July, but few fields needed chemical treatments. Late instar larvae were observed in Boone County during the week ending July 23. Second generation adults were first detected during the last week in July. Flight activity peaked about August 4 in the central counties. Sporadic light feeding damage occurred statewide. The fall survey indicated 65 percent infestations statewide with an average of 122 borers per 100 plants, representing a slight increase in infested plants (from 59 percent) but a decrease (144) in numbers of borers from 1975. The greatest potential for first generation European corn borer damage in 1977 exists in the western one-third of the State.

Winter survival of European corn borer in MINNESOTA was 93 percent in the southwest, south-central, and southeast districts. Fall populations (averaged 64 per 100 corn plants statewide) decreased from the 1975 levels in the northwest and west-central districts, possibly due to very dry weather. Populations remained about the same in the east-central district and increased in the central, southwest, south-central (averaged 151 per 100 plants), and southeast districts. Very heavy light traps catches of second generation adults in 1975 did not give rise to the expected heavy first generation in

the spring of 1976. Overwintering European corn borer larvae were heavier in some districts than in previous years. Larval survival in April 1976 ranged 92-100 percent in all fields surveyed in WISCONSIN. Pupation began at Beaver Dam, Dodge County, by May 4. Adults began emerging about May 25. Adult activity peaked about June 7 in Dane and Waushara Counties and about June 15 in Fond du Lac County. Egg laying began about June 10 and continued until July 16 due to favorable weather, with the result that by July 16, all stages were present. Pupation was first noted in Eau Claire and Sauk Counties July 16. First generation larvae infested up to 33 percent (averaged 8-16) percent of the plants. The second adult flight began about July 23 at advanced southern sites and peaked about August 11. Some egg masses were evident by August 6 at southern sites, most eggs were laid on late sweet corn. In most instances, only about 4 percent of the plants had eggs, but rare individual fields at harvest had up to 50 percent of the ears infested with small larvae. Sweet corn growers applied chemical controls in a relatively small percentage of their fields. The fall survey of grain corn in September showed 19 percent of the plants infested and 23 larvae per 100 plants, about the same as in 1975 (22 per 100 plants) and well below the 30-year average of about 45 per 100 plants.

Overwintering survival of European corn borer was 88 percent in the northwest district of ILLINOIS as of mid-April 1976. Development was ahead of normal. Pupation was well along and adults were emerging in the southern counties. With development well ahead of corn in the southern counties, problems were expected only in early planted fields. By the second week in May, pupation was 28 percent in the central counties with no adult emergence and no pupation in the northern areas. By June 11, adult emergence was nearly completed in the southern one-half of the State and was 52 percent completed in the northern counties. Egg masses and whorl feeding were found during a northern area egg mass survey the last week of June. Populations were mostly light and only occasional fields had 50 percent or more whorl feeding as of the first week in July. In the northern area, treatment was warranted in some early planted fields before July 9 and adults were flying during the third week of August. The estimated dollar loss from European corn borer was about \$960,000, including treatment cost. Benefits from treatment of 60,000 acres were estimated to be about \$418,000, over and above losses from yield reduction and control costs. The heaviest counts were in the northwest and west districts with 4.9 and 9.5 borers per 100 plants, respectively, in the first brood survival survey and with 67 and 73 borers per 100 plants, respectively, in the fall survey. The greatest potential for damage to field corn in 1977 appears to be in these 2 districts; damage in these areas is expected to be light to moderate.

First generation European corn borer infestations ranged 20-45 percent in the second half of June 1976 in corn fields of 16-30 acres in central KENTUCKY. Pupation was almost completed by May 12, 1976, in southern INDIANA. The first adult collected in blacklight traps was taken in Randolph County May 16 where first generation flights peaked May 31 and second flights peaked August 4; second generation flights started on July 16 with good numbers present until August 19. The State averaged 3.1 larvae per 100 stalks in the July survey, with the heaviest populations in the north-northeast area (8.2 per 100 stalks), the south-southwest (7.7), and the south-southcentral (6.6) districts, agreeing with the fall survey results. In that survey, the State averaged 37 larvae per 100 stalks, with the heaviest populations (70-72 per 100 stalks) in the same districts. Adult flight activity began in

OHIO in Wayne County on May 19, 1976, the earliest European corn borer adults were ever caught in blacklight traps at this location. The catch was 14 days earlier than the 10-year average date of first catch. Damage to corn by first-generation larvae was light statewide except for the northeast area where damage was moderate to heavy. Infested plants ranged 34-90 percent in the northeast counties and 0-30 percent for the rest of the State. The heaviest infestation averaged 4 larvae per plant in Wayne and Stark Counties July 13. By early September in the northeast area, 6-60 (average 30) percent of the corn plants was infested with up to 168 (average 48) larvae per 100 plants. Infestations in the rest of the State averaged 0-16 percent with a maximum of 28 larvae per 100 plants.

European corn borer infestations were estimated at 10 percent in field corn in the Coastal Plains of VIRGINIA August 6, 1976. By October 8, heavier damage was observed in many fields during harvest. Pupation of the overwintered larvae in DELAWARE was 10 percent by March 29, 1976, and 50+ percent by April 20. The first adults of the season were collected in blacklight traps during the third week of April and pupation of overwintered larvae was 90+ percent by the first week in May. Egg masses were noted on corn, weeds, and potatoes in the second week of May when adults averaged about 2 per night in trap collections. Adult flights remained unusually light throughout May, June, and early July. Infestations in early planted corn were light in most areas. Flights of the second generation peaked about July 20, populations were not heavy, 10+ per night, until mid to late August. Infestations in corn were much lighter than in 1975, averaging only 40 percent statewide. Statewide in the fall survey, European corn borer averaged 85 per 100 plants, much lighter than the 389 average in 1975. European corn borer adults of the overwintered generation began to emerge in southern PENNSYLVANIA in mid-May 1976 and continued through mid-July in the northern counties. Larval damage to tolerant varieties of corn was negligible in spite of heavy populations in some areas (12 per 20 stalks in Cumberland County and 21 per 20 stalks in Green County). The second flight seemed to be a partial flight in the northern counties. The southern counties had a more complete second flight which peaked in the third and fourth week of August. In general, this pest was only important in the sweet corn crop in 1976.

European corn borer adults in MASSACHUSETTS first appeared in light traps in the eastern counties June 1, 1976. The first generation was underway in the southeastern counties by mid-July, infesting a lot of corn being harvested at that time. Large numbers of adults continued to be captured in light traps in the southeastern counties in early August. By mid-September, larvae were very common in gladiolus spikes in the southwestern counties and in corn statewide. Adults in NEW HAMPSHIRE were first observed in corn fields during early June 1976. Adults were laying eggs by June 10 and first instar larvae were observed in sweet corn more than 6 inches tall. Damage to field corn was insignificant due to adequate treatment, but sweet corn was heavily infested during late June and early July, especially in the southeastern and central parts of the State. In early July, infestations were 95+ percent in Rockingham County, particularly where insecticide treatments were poorly timed.

Second generation infestations of SOUTHWESTERN CORN BORER (Diatraea grandiosella) in corn in Texas and Cimarron Counties, OKLAHOMA, ranged 4-100 percent in mid-October. Girdled stalks averaged 36.6 percent and lodged stalks averaged 28.3 percent. These heavy counts may be partly due to heavier than normal survival of the overwintering population during the relatively mild winter of

1975-1976. Infestations were serious on corn in KANSAS, particularly in the south-central and southwest districts in 1976. Surveys showed the southwestern corn borer made substantial inroads in the southwest district in 1976. About one-third of all corn in the State is produced in this area.

The infestation density of SUGARCANE BORER (Diatraea saccharalis) in sugarcane in FLORIDA decreased slightly in 1976. The average number of cane joints infested was 6 percent in 1976 as compared with 8 percent in 1975. About 60,000 acres needed treatment.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were generally erratic but caused some spot damage to sweet corn in the Everglades area of FLORIDA in 1976. Soil insecticides, as normally applied for WIREWORMS, were only partly effective against lesser cornstalk borer. Overall infestations were not as bad in 1976 as in 1975 on corn in Alachua, Gilchrist, and Levy Counties. The wet spring of 1976 helped to produce good corn yields.

FALL ARMYWORM (Spodoptera frugiperda) infested sorghum from late June to mid-September 1976 in OKLAHOMA. Very heavy infestations had developed in some areas by mid-July and were common, especially in the southwest and west-central counties, from late July to early September. Infestations ranged 10-50 per row foot in Washita County in mid-August and some damage to sorghum heads was reported in the southwest area. Infestations on young sorghum in ARKANSAS occurred as early as mid-June 1976 in the southern area and in early July in the northwest area. This species is seldom economic on sorghum and progress is being made in avoiding unnecessary treatments. Infestations in corn were significant in the south-central district of KANSAS during 1976. Along with kernel feeding, ear shank damage sometimes resulted in further loss, due to ear drop. Larvae first appeared in economic levels in MISSISSIPPI during the last week in June 1976 in Jefferson Davis and other southern counties. Corn and sorghum planted in June and July were severely infested. Infestations of 200 percent were common in many parts of the State. Populations were much heavier than in 1975.

Infestations by fall armyworm and/or YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) were reported in TENNESSEE beginning August 4, 1976. Damage was reported in 23 counties in 210 acres (180 acres were treated). The population was normal and controlled with recommended insecticides in Dade County, FLORIDA, in 1976. In the Everglades area, Palm Beach County, this species and BET ARMYWORM (S. exigua), damaged whorls of sweet corn throughout the growing season with only a slowup during the mild winter; particularly heavy infestations during the fall almost completely destroyed unprotected corn. During September in Marion, Levy, and Alachua Counties, fall armyworm was a problem on several hundred acres of sorghum, requiring treatment. Some growers had difficulty obtaining control. In the Hastings area, St. Johns County, fall armyworm was light on 2,500 acres of corn and sorghum early in the season but became heavy on late-planted field corn (planted in May), the problem being worst the last 7-14 days of June (the heaviest damage occurred in the whorls but also some on the ears by the end of June). The first report of larvae in the northern area was on 12 to 14-inch corn at Hastings April 9. Infestations were again moderate to heavy on sorghum in SOUTH CAROLINA in 1976. Populations were noted statewide by mid-August. Most growers were late in applying insecticides and economic damage resulted in many areas. Moderate to heavy infestations were again noted on sorghum in South Carolina in 1976. The pest was found statewide by mid-August. Most growers applied insecticides too late to prevent economic damage. Some problems were noted in commercial field corn in eastern RHODE ISLAND in 1976 but the problems were much lighter than in 1975.

BEET ARMYWORM (Spodoptera exigua) infestations in FLORIDA became an unusual problem on several hundred acres of young sweet corn and seed corn grown in the southern Miami area of Dade County, during September and October 1976. Growers did not get good control with the chemicals used. Infestations caused a problem during May on field corn at Hastings in fields where pigweed was prevalent. Beet armyworm and FALL ARMYWORM (Spodoptera frugiperda) damaged whorls of sweet corn throughout the growing season in the Everglades area with the mild winter slowing, but not stopping, activity. Particularly heavy infestations during the fall months almost completely destroyed unprotected corn.

BLACK CUTWORM (Agrotis ipsilon) caused scattered damage to 1976 NEBRASKA corn plantings. Damage was reported from Richardson and Antelope Counties in early June. Infestations in IOWA were first detected in field corn during the week ending May 21, 1976, in Sioux and Buena Vista Counties. Leaf feeding by larvae, 0.50-0.75 inches long, increased during the week ending May 28. Damage was reported from 11 counties. Some fields were replanted where stands had been reduced 50-80 percent. Damage increased during the first week of June, affecting field corn in Clinton, Dubuque, Greene, Hamilton, Jasper, Story, Union, and Worth Counties. Stand reductions ranged 3-50 percent. Larvae increased up to 1.5 inches long and damage was reported from 9 counties statewide. Much damage was in corn in chisel-plowed soybean ground. Less damage observed during the week ending June 18 indicated activity had apparently peaked. Late instar larvae damaged 2-foot corn in Scott and Washington Counties during the week ending June 25. Scattered reports of damage during the first week in July were received from Clinton County. Infestations caused more widespread damage to field corn in 1976 than in 1975. Significant damage is expected in reduced-tillage fields in 1977.

Black cutworm feeding was first observed in some corn fields in southern ILLINOIS during the last week of April 1976. Damage was mostly leaf feeding with some cut plants. Damage was reported in some fields in the southern and western areas during the second week of May and in the central area through the first week of June. By the second week of June, damage was reported from occasional fields in most areas with infestations ranging from light to moderate (5-15 percent cut plants). Heavy damage was reported from a very few fields. By the third week in June, activity had decreased and some stalk boring was reported. Dollar loss due to emergency treatment and yield loss was estimated at about \$3 million. Benefits from treatment of about 100,000 acres amounted to over \$1 million, over and above losses from yield reduction and control costs. About 54,000 acres of corn had to be replanted. The first adult of the season in INDIANA was collected April 16, 1976, in a Tippecanoe County blacklight trap with peak flights July 2-8. Larvae were present in more corn fields in 1976 than for several years, but rarely reached economic numbers. No more than 400 acres with economic or near economic populations were reported. Only 24 percent of the larvae collected in 1976 were parasitized compared with 60 percent in 1975.

Damage in NORTH CAROLINA was severe in scattered corn fields during late April and May 1976 from the mountains to the coast. The heaviest damage occurred in Washington, Pender, Cumberland, and Robeson Counties where 5-15 percent stand loss occurred in 8 fields totaling 650 acres. Infestations up to 5 percent occurred in more than about 10 percent of the 100 fields sampled during May in the Piedmont. A dry April and cool May increased plant susceptibility to larvae. Severe infestations on corn were reported throughout NEW YORK in late June 1976. The affected counties included Broome, Onondaga, Orleans, Clifton, and St. Lawrence. Substantial stand losses, often 50 percent, were reported and many fields were replanted. Adults peaked at 44 in blacklight trap

collections in Kennebec County, MAINE, the week of May 28, 1976. Adults continued to average about 1-5 per trap per night until September 15, explaining the continuous infestations of all larval instars in all of southern and central Maine. By June 15, larvae of all sizes severely damaged 50 acres of corn in York County, 30 acres in Somerset County, and other large acreages in central and southern Maine. An estimated 5,000 acres were treated.

WESTERN BEAN CUTWORM (Loxagrotis albicosta) damaged ears and tassels in several corn fields 8 miles southwest of Boise City, Cimarron County, Oklahoma, August 4, 1976. Collected by D. Arnold and B. Mussey. Determined by D.M. Weisman. This is a new State record. The first adult of the season in NEBRASKA was taken at a blacklight trap in Hamilton County June 28, 1976. The first egg mass was observed on corn in Antelope County July 6. A total of 1,700 moths was taken in a light trap near Imperial, Chase County, the night of July 19. Infested plants ranged 15-90 (averaged 30) percent in 9 corn fields in Antelope and Wheeler Counties July 21. Infestations were economic in the southwest, central, east, north, and northeast districts. Infested plants averaged 10 percent in 48 fields in Brown, Rock, Keya Paha, and Holt Counties August 12-16. Fully grown larvae left corn ears to enter the soil in Brown and Rock Counties August 25. More damage was reported in 1976 than in recent years.

STALK BORER (Papaipema nebris) damage to the borders of corn fields was moderate in the central and midwestern areas of KENTUCKY in early July 1976. Infestations were apparently more common than usual in INDIANA in 1976, both in corn and small grains, an unusual occurrence. Damage to no-till corn in central and south-central PENNSYLVANIA in 1976 was so heavy in some areas that replanting was necessary.

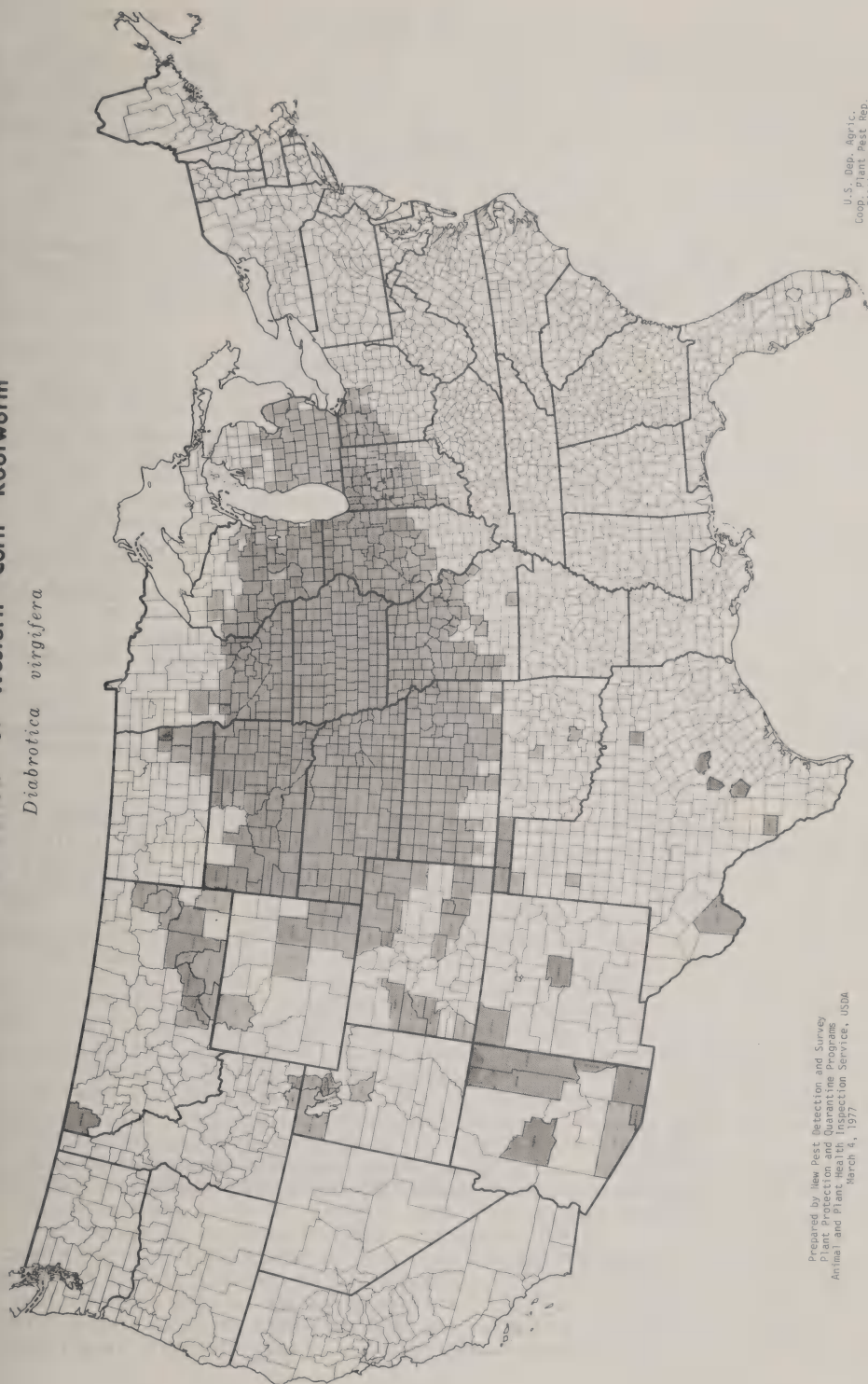
SORGHUM WEBWORM (Celama sorghiella) infestations in ARKANSAS during 1976 were typically light and scattered but more common in late sorghum. Treatments were required in only occasional fields except in Craighead County where late sorghum required treatment in October. Infestations in SOUTH CAROLINA in 1976 were about normal. Only a slight reduction of production was noted.

Preventive control and crop rotation in UTAH in 1976, reduced injury by WESTERN CORN ROOTWORM (Diabrotica virgifera) to moderate levels with an occasional conspicuously damaged corn field. Some control of adults was necessary in Box Elder, Weber, and Salt Lake Counties. D. virgifera adults in IDAHO seriously damaged pollination of corn; damage to roots was not as serious as expected. Infestations are still apparently restricted to Oneida and Franklin Counties. Lodging by Diabrotica spp. larvae was not as common in Kansas during 1976 as in 1975. Serious root damage was reported in Graham and Sherman Counties. Treatment for adults was reported throughout the western area. Some particularly heavy adult infestations were noted in Brown, Doniphan, Linn, Chase, and Thomas Counties by late July. D. virgifera and NORTHERN CORN ROOTWORM (D. longicornis) larvae were feeding on corn roots in Merrick, York, Hall, and Buffalo Counties in NEBRASKA June 13, 1976. Actual rootworm damage peaked the last week of June and the first week of July. Pupation was noted in Hall, Merrick, York, and Fillmore Counties June 28-30. The first western corn rootworm adults were noted in Lancaster County June 26 and in the northeast district July 3. Severe root pruning was noted in scattered fields in the northeast district. Lodging was most common in the northeast and southeast districts as indicated by fall damage surveys. Apparent failures of soil insecticides were few. Adults, up to 10 per plant in some fields, interfered very little with pollination.

Diabrotica spp. were a severe problem on field corn in IOWA in 1976. First and second instar larvae were first detected in field corn in O'Brien County the week ending June 18. By June 25, second and third instars ranged 5-10 per plant

Distribution of Western Corn Rootworm

Diabrotica virgifera



Prepared by Law Pest Detection and Survey
Plant Quarantine and Inspection Programs
Animal and Plant Health Inspection Service, USDA
March 4, 1977

U.S. Dep. Agric.
Coop. Plant Pest Rep.
2(10):115, 1977

on corn in Ida County, Iowa. During the week ending July 2, heavy rootworm populations damaged treated corn fields in Ida County. At that time, the first pupa was collected and 7 days later the first adult observed in this county. Rootworm development in 1976 averaged about 14 days ahead of 1975 development. Late instar larvae ranged 3-4 per plant in treated corn in Clinton and Clayton Counties during the third week of July. Adults were heavy, 10-25 per plant, and were cutting silks on field corn in Carroll and Butler Counties the week ending July 23. No gravid females were evident. Corn lodging was reported during the last week of July. Controls were applied where beetles ranged 3-25 per plant in Adair, Adams, Benton, and Floyd Counties during the first week in August. During the same time, larvae, pupae, and adults were still present in Crawford County corn fields and egg laying was underway in Carroll, Crawford, and Tama Counties. Although rootworm populations were heavier in 1976 than in 1975, very dry conditions prevented many fields from lodging.

Diabrotica spp. damage was difficult to separate from drought effects on field corn in SOUTH DAKOTA in 1976. First instar larvae were found in Lincoln County during the third week in June. The general rootworm infestation pattern began at moderate to heavy levels. Heavy larval mortality was associated with very dry soil conditions. Plants showed moisture stress during much of the growing season. Larval survival appeared related to the larval tunneling in larger roots. Larvae ranged 10-90 per plant, more erratic than in past years, at the southeast experiment station during late June; subsequent counts showed sharp decreases. The first D. virgifera males were observed through the use of sex pheromone traps June 28. Corn rootworm damage and insecticide "failures" were considerably less in 1976 compared with previous years. The large acreage of drought-affected corn cut for silage, and rapid maturity of dryland corn contributed to beetle migration to irrigated corn. Few small grain stubble fields had sufficient volunteer grain and weed growth to attract corn rootworm beetles. In 1977 the incidence of first-year corn damage is expected to be minimal and erratic populations are expected in continuous corn. Insecticidal performance in test plots declined about 10 percent as a result of the very dry soil. Damage in the untreated areas was not as severe as anticipated from egg counts and the rate of hatch studies.

New county records were reported in NORTH DAKOTA in 4 counties for SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi), in one county for D. longicornis, and in 10 counties for D. virgifera. Survey of D. longicornis and D. virgifera adults in 41 corn-growing counties of MINNESOTA during 1976 revealed increases in the west-central, central, east-central, southwest, and south-central districts and a decrease in the southeast district compared with levels in 1975. Beetles in the west-central district averaged 46,098 per acre compared with 28,511 per acre in 1975. Populations increased in 6 counties and decreased in 4. The heaviest average was noted in Yellow Medicine County at 110,814 per acre. Populations in the central district averaged 22,335 per acre in the 8 counties surveyed, increasing in 4 counties and decreasing in 2. The heaviest average was 71,925 per acre in Wright County. The east-central district averaged 21,547 per acre, a more than twofold increase over the 1975 count of 10,874 per acre. The southwest district averaged 69,367 per acre. This district had the heaviest population in 1976 with all counties registering increases. The south-central district averaged 54,317 per acre. Increases were noted in Blue Earth and Waseca Counties with 83,519 and 39,485 per acre, respectively, compared with 45,085 and 1,960 per acre in 1975. The southeast district averaged 46,521 per acre, a decrease from 53,421 per acre in 1975. Populations decreased in Dakota, Fillmore, Goodhue, and Olmsted Counties. In WISCONSIN a Diabrotica spp. egg survey (10.3 eggs per pint of corn field soil) in the fall of 1976 indicated a high potential for damage in 1977. The first large larvae were observed June 14 in Columbia County; up to 20 larvae per root mass were noted in some treated corn fields. Insecticide "failures" were reported in many Wisconsin localities.

TMENT OF AGRICULTURE
 LTH INSPECTION SERVICE
 d Quarantine Programs

asshopper adult surveys made during the late
 w many grasshoppers infest an area, and indicates
 surveys, made in the spring, determine population
 necessary in 1977.

ndled by the farmers with technical assistance
 ed rangeland areas total 5,194,760 acres in
 iagrammatic. Within these areas, infestations

ER INFESTATIONS
 WS, FALL 1976

in red)

REGION AND STATE	LANDOWNERSHIP--ACRES		TOTAL ACRES
	Private and State	Public Domain	
Utah	17,840	28,200	46,040
Wyoming	263,200	52,480	315,680
SOUTH- CENTRAL			
Nebraska	900,000	100,000	1,000,000
N. Mexico	237,000	69,000	306,000
Oklahoma	195,000	-0-	195,000
Texas	253,000	-0-	253,000

and Quarantine personnel in cooperation with various

GRASSHOPPER FAI



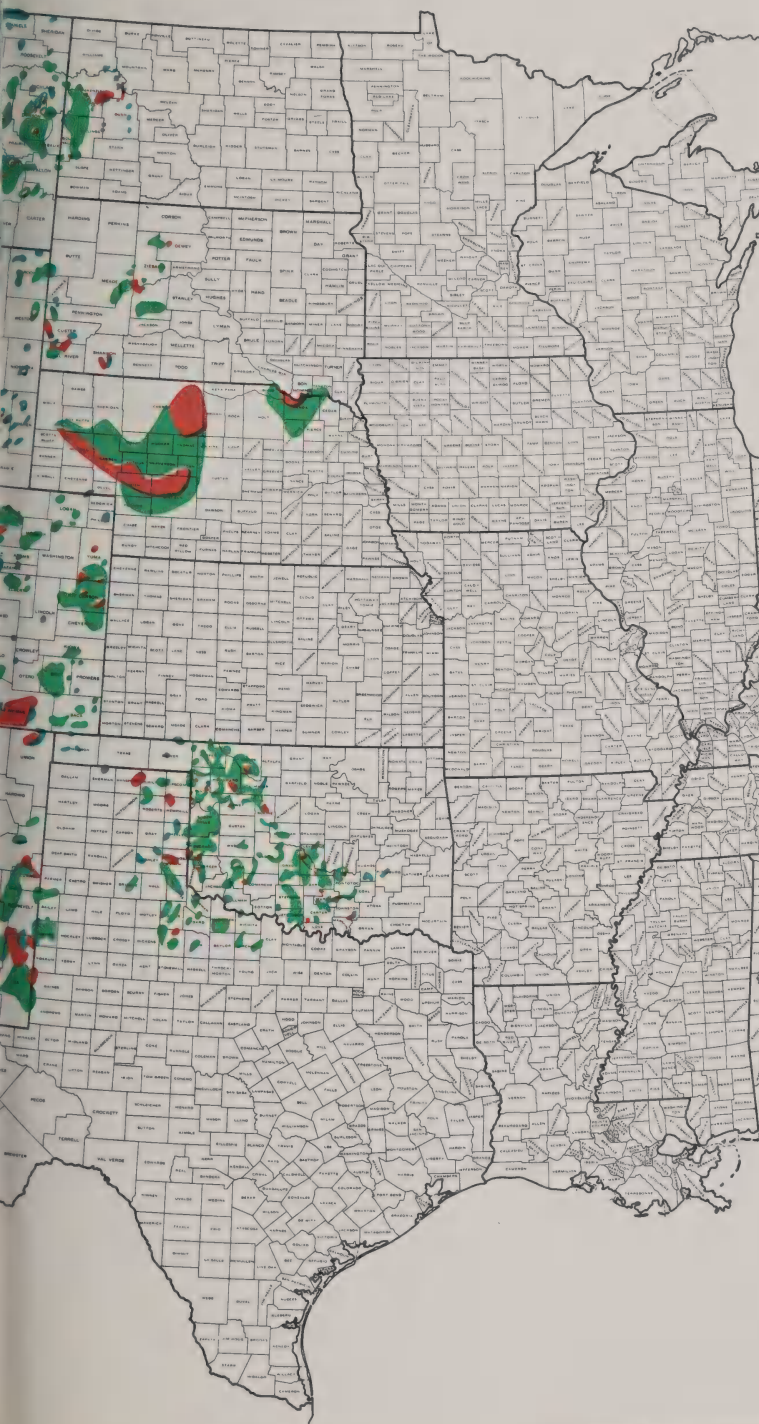
- 8 OR MORE GRASSHOPPERS PER SQUARE YARD
(may require control)
- 3 TO 7 GRASSHOPPERS PER SQUARE YARD
(usually non economic)

necessity for control on crop or rangeland next season will depend upon type of habitat, species present, weather and condition of vegetation.

detailed information concerning the grasshopper problem in specific areas can be obtained from state pest control officials, county agents and plant protection personnel.

ADULT SURVEY

1976



UNITED STATES DEPAR
ANIMAL AND PLANT HEA
Plant Protection ar

TO COOPERATORS:

This map is based upon the results of cooperative g
summer and fall of 1976. The survey reveals where and ho
the potential severity of infestations for 1977. Nymphal
densities, and indicate those areas where control may be

Control on grasshopper infested croplands will be h
from Plant Protection & Quarantine personnel. The infest
15 Western and Midwestern States. Areas on the map are c
may be solid or spotted.

RANGELAND GRASSHOP
ACREAGE BY REGIO

(Areas show

REGION AND STATE	LANDOWNERSHIP--ACRES		TOTAL ACRES
	Private and State	Public Domain	
WESTERN			
Arizona	36,000	282,000	318,000
California	151,350	11,100	162,450
Colorado	965,680	54,000	1,019,680
Idaho	33,350	102,200	135,550
Montana	870,200	191,380	1,061,580
N. Dakota	82,650	118,720	201,370
Oregon	7,860	3,200	11,060
S. Dakota	45,600	70,200	115,800
Washington	39,950	13,600	53,550

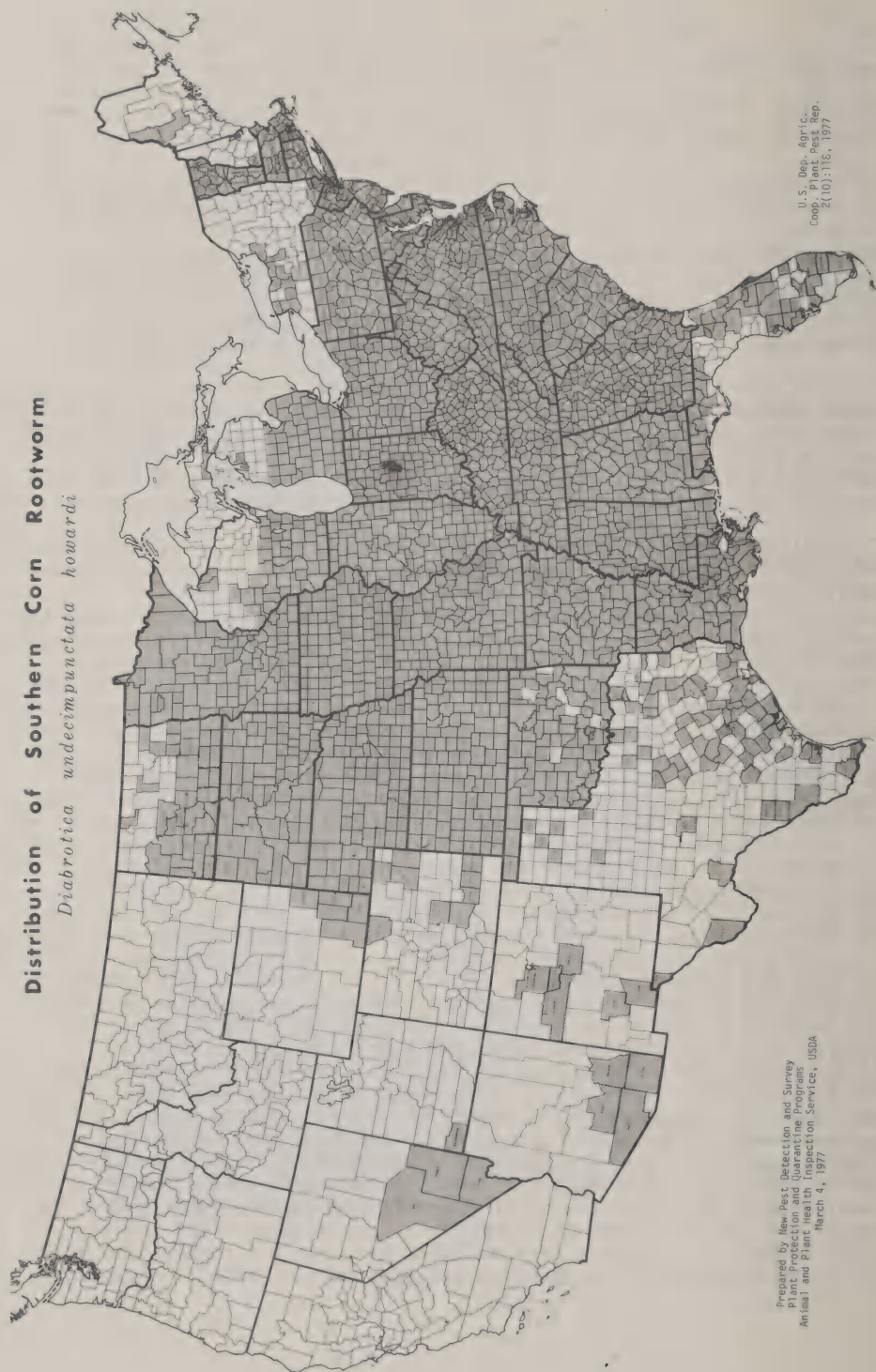
The survey was planned and performed by Plant Protection
State Agencies concerned.

The first D. longicornis adults were noted in Columbia County July 1, and D. virgifera adults were observed in Dane County July 9. Heavy populations in many corn fields late in July and August caused many growers concern over silk feeding by the adults. Silk feeding reduced pollination in about 2 percent of the fields statewide; much treating was done to control adults in certain localities. Mating was noted as far north as Trempealeau County by July 23, and egg laying probably began in the southern counties about August 1. A survey early in August revealed a State average of 1.9 beetles per plant, a 46 percent increase over the previous summer. An egg survey late in September revealed a State average of 14.8 eggs per pint of soil, an increase of 43 percent over the previous fall. Based on the beetle and egg surveys, severe problems with corn rootworms are anticipated in 1977. A survey late in September showed 3.4 percent lodging statewide, a drastic decrease from 1975 due to corn plants developing deeper, denser root systems in 1976 as compared with 1975, and the drought-baked soil cementing damaged corn plants in an upright position.

SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) larvae were first reported from Pike County, MISSISSIPPI, April 16, 1976. Damage was extensive to seedling corn; three fields were replanted. Spotted infestations were recorded during late spring on young corn and sorghum in the southern area. Populations decreased by June 15. D. undecimpunctata howardi damaged some field corn in Franklin and Lincoln Counties, TENNESSEE, in late May and early June 1976.

D. virgifera and D. longicornis egg hatch in ILLINOIS was well underway by mid-June 1976. Half-grown larvae were found in the western and northwestern counties at this time. By July 1, newly hatched to fully grown larvae and pupae were found, and hatch was expected to continue for at least 7 more days. Larvae ranged 10-15 per plant in occasional fields. Serious root pruning and some lodging was already observed in some fields. By July 9, adults were emerging in the central counties. D. virgifera ranged 7-8 per plant in some fields and 2-3 per plant in many fields within 14 days of silking. By July 16, beetles were observed emerging in large numbers in the northern and central counties, especially in fields of continuous corn. Peak adult emergence was anticipated for late July, but pollination was expected to be completed in most fields. The estimated dollar loss from corn rootworm adults and larvae was about \$40 million, including cost of control. Benefits from treatment of 1.1 million acres for beetles and 5.5 million acres for larvae, amounted to approximately \$37 million over and above dollar losses from control costs and feeding damage. The heaviest populations were noted in the northwest (3.5 per plant), northeast (2), and western (2.1) districts. The potential for damage to corn in 1977 is considered moderate to severe for the northern half of the State. The first D. longicornis adult of the season in INDIANA was seen July 5, 1976, in Parke County. During the summer, infestations were noted in about 9 percent of the corn fields (a decrease from 1975) surveyed in the northern and southern fourths of the State and in 27 percent of the fields in the central one-half of the State (about the same as in 1975). The first D. virgifera larva was seen June 11, 1976, in Porter County, Indiana, and the first adult was noted July 1 in La Porte County. Activity peaked in a corn field in Tippecanoe County on July 27. Although goosenecked stalks were no more common than in 1975, several other indicators pointed to heavier populations in 1976 than in 1975. Adults were seen in 77 percent of the fields during the July survey, as compared with 59 percent in 1975, in the northern one-fourth of the State. Adults in the rest of the northern one-half of the State were seen in 22 percent of the fields, as compared with 14 percent in 1976. Western corn rootworm also dominated northern corn rootworm in nearly all of Indiana north of Indianapolis and extended its range by 15 counties.

Distribution of Southern Corn Rootworm *Diabrotica undecimpunctata howardi*



Prepared by New Pest Detection and Survey
Plant Protection and Inspection Service
Animal and Plant Health Inspection Service, USDA
March 4, 1977

U.S. Dep. Agric.
Soil Conservation Service
Cooperating Entomologist
2 (10) 116, 1977

The first D. longicornis larvae collected in OHIO was taken in soil samples from Wayne County June 10, 1976. Pupation was first noted July 1 and the first adult was collected July 12. Adults were present statewide by the end of July. Adult populations were similar to previous years, light to moderate for all areas except the northeast where heavy infestations were reported. Areawide population averages in continuous corn fields during August 1-21 ranged from 12.5 to 375 beetles per 50 plants. Dispersal of beetles out of maturing corn fields had begun by August 17 and was well underway statewide by August 24. Northern corn rootworm was laying eggs in the northeast area by August 26. D. virgifera populations in continuous corn fields were light to moderate, but showed an increase over 1975 in all infested areas. Surveys during August 1-21 in the northwestern counties, where western corn rootworm is known to have been present for 2 years, revealed average population densities ranging from 9 to 73 (mean 33) beetles per 50 plants. The heaviest infestation was in a Defiance County field with 2.5 beetles per plant on August 3. In the northwestern, north-central, and west-central counties where western corn rootworm was first detected in 1975, populations averaged 2-75 (mean 18) beetles per plant. Nine new county records were established for western corn rootworm. Surveys indicate a dispersal of about 40 miles to the west and 20 miles south of the area considered infested in 1975.

The first D. longicornis adults in PENNSYLVANIA were noticed during the third week in July 1976 and reached full activity in the southern and central counties by mid-August. Because of heavy rainfall, the corn crop seemed able to produce sufficient secondary root systems to overcome infestations. The heaviest activity in the northern counties was reached in late August. Egg laying began in late August and peaked in mid-September. Because of heavy populations in many areas (80 per 20 stalks in Lancaster County and 75 per 20 stalks in Mifflin County), infestations may be very important in continuous corn in 1977.

CORN FLEA BEETLE (Chaetocnema pulicaria) infestations were heavier than usual on seedling corn in KANSAS. Some heavy infestations were noted in Marion (up to 12 per plant) and Douglas (up to 4 per plant) Counties during mid-April 1976. Some adults of this species, the vector of STEWART'S WILT (Erwinia stewartii), appeared in the eastern counties of MASSACHUSETTS in early June. Populations were light in 1976 due to a harsh winter.

A WEEVIL (Sphenophorus zeae) destroyed 20 acres of corn in Decatur County, INDIANA, in 1976, an unusual occurrence. MAIZE BILLBUG (Sphenophorus maidis) and S. callosus continued to damage some corn across SOUTH CAROLINA in 1976. S. callosus caused light to heavy damage in isolated fields throughout the lower part of the State. Damage by S. callosus and S. maidis adults continued to be of major concern to corn growers in the southern Coastal Plain and Tidewater area of NORTH CAROLINA during April and May 1976. Severe stand loss occurred in some areas due to poor early season corn growing conditions. Estimates of 50 percent plant damage and 25 percent stand loss in Hoke, Robeson, Columbus, Bladen, and some Tidewater counties were common in untreated, nonrotated fields. Damage in the upper coastal counties has steadily increased for the past 5 years. Generally, damage in Wilson, Harnett, Edgecombe, Johnson, and Wayne Counties was less severe than in the southern counties, but replanting in about 10 fields was reported. Usually, damage is severe in 5-15 border rows.

Two WIREWORMS (Melanotus communis and Conoderus falli) caused 10-35 percent stand loss in inadequately treated sweet corn in the Everglades of FLORIDA in 1976. About 95 percent of the commercial acreage was treated adequately

either by chemicals or by flooding. In sugarcane, M. communis began to rival SUGARCANE BORER (Diatraea saccharalis) as a major pest in Florida; the population was about the same in 1976 as in 1975.

M. communis and Conoderus sp. caused heavy stand loss in NORTH CAROLINA corn fields scattered over the Piedmont and Coastal Plain in 1976. Damage was most severe in late-planted or late-germinating (due to April drought) fields. Up to 15 percent stand reduction was reported from Montgomery, Washington, Chatham, and Cleveland Counties.

CHINCH BUG (Blissus leucopterus leucopterus) infestations were unusually heavy and damaging after migrating from maturing wheat to sorghum in some counties in eastern KANSAS during 1976. The heaviest infestations were noted in southern Washington County where several fields were destroyed; some were replanted and destroyed again by chinch bugs. Chinch bugs were reported as a pest of sorghum in Washington and Nemaha Counties throughout the season. Occasional damaging infestations also occurred in Marshall, Republic, Jefferson, Riley, Clay, Cloud, Lincoln, Geary, Morris, Dickinson, Marion, Harvey, McPherson, Reno, Sedgwick, Shawnee, Osage, and Douglas Counties. Infestations in NEBRASKA were unusually heavy and troublesome to growers in the southeast district in 1976. The most heavily infested fields were in Johnson, Gage, Jefferson, Thayer, Saline, Lancaster, and Otoe Counties. Many fields of winter wheat which overwintered in poor condition were destroyed very late and replanted to grain sorghum. Resultant infestations, heavy in many cases, completely spread throughout the field. Treatments proved nearly useless. Some growers replanted once or twice until a stand was grown. Infestations in ILLINOIS caused serious damage in late July 1976 in some southern fields of no-till corn planted in wheat stubble. This situation may occur again in 1977.

YELLOW SUGARCANE APHID (Sipha flava) infestations along with GREENBUG (Schizaphis graminum) and CORN LEAF APHID (Rhopalosiphum maidis) heavily damaged young sorghum from late May to late June 1976 in OKLAHOMA. Infestations were first reported in Wagoner and Tulsa Counties and spread to most counties in the east-central, northeast, north-central, and northwest areas. Yellow sugarcane aphid continued a noneconomic pest of sorghum in ARKANSAS in 1976, but infestations were somewhat heavier than in past years. Infestations were taken in 3 new counties. Yellow sugarcane aphid was heavier and more widespread on KANSAS sorghum (generally seedlings) in 1976 than ever before recorded. Infestations were most commonly found in the east-central and southeast districts where some damaging infestations were reported. In rare cases it was found as far west as Sedgwick, Kiowa, and Dickinson Counties.

A GRASS THRIPS (Anaphothrips obscurus) seriously damaged 3 acres of corn in Gibson County, INDIANA, in 1976, an unusual occurrence.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) infestations became very heavy along borders of some corn fields by August 4, 1976, in Carbon County, MONTANA. Several hundred acres were treated. In NORTH CAROLINA injury reports during July 5-9, 1976, indicated the problem in field corn is no longer restricted to the northern coastal counties. Reports of severely damaged 0.5-acre spots were received from Sampson, Hoke, and Robeson Counties in the southern Coastal Plain. Damage continued most severe in Edgecombe, Halifax, Chowan, Northampton, and Bertie Counties. Spots up to one acre in size were observed during early July with brown leaves to midstalk. Infestations spread from border rows inward and most often occurred on light soils. Heavy populations damaged field corn in southeast VIRGINIA July 9, 1976, necessitating controls in many fields. Heavy populations continued to cause problems on

corn and other crops in southeastern Virginia through July. T. urticae damage was widespread. In many fields damage was confined to the outer 4 or 5 rows and control was not justified except on the margins.

BANKS GRASS MITE (Oligonychus pratensis) populations on silage corn in Churchill County, NEVADA, were light in 1976 as in 1975 with only 56 acres treated in July. Colonies were noted at 3-5 per corn leaf in Roosevelt County, NEW MEXICO, by early July 1976. In early August, colonies were 15-20 per sorghum leaf with heavy damage in southern Dona Ana County. Controls at that time were ineffective. Activity was noted on corn and sorghum in OKLAHOMA from early June to mid-September 1976. Some corn fields in the Panhandle counties needed treatment between mid-July and mid-August.

O. pratensis and TWOSPOTTED SPIDER MITE (Tetranychus urticae) were very widespread and damaging to NEBRASKA corn in 1976, particularly in the northeast, east, central, and southwest districts. Of 70 corn fields surveyed in Dundy County on July 8, only 64 fields had colonies of 3-35 mites on the undersides of lower leaves. Infestations were spreading throughout the fields and was not confined to margins. Mites increased on corn in Merrick, Hall, and Buffalo Counties with colonies as high as the fifth leaf on July 19. Of 80 fields on July 23-27 in Hall and Buffalo Counties, 13 had several lower leaves killed with damage extending up to ear level. Mites became damaging in Antelope, Pierce, and Cedar Counties where 10 of 68 fields surveyed had economic infestations August 25. Populations were threatening in many fields in the east district as late as September 1 when corn began to dent.

SMALL GRAINS

Highlights

TAKE-ALL was one of the most significant diseases of winter wheat in Wisconsin. Heavy FALL ARMYWORM infestations in wheat were noted in Oklahoma and Kansas; infestations on rice in Arkansas and Mississippi were treated.

DISEASES

The prevalence of OAT CROWN RUST (Puccinia coronata var. avenae) infection in WISCONSIN was greatly reduced in 1976 as compared with the previous 3 years. A survey was taken in 70 fields of the 20 main oat-producing counties. State-wide infections were found on one percent of the surveyed plants at a one percent severity level. Unfavorable weather conditions prevented the early development of crown rust and the dry, hot summer further suppressed the disease. No infection was seen in 12 of the 20 counties surveyed and drought damaged leaves made assessment of foliar diseases difficult.

OAT LOOSE SMUT (Ustilago avenae) caused the heaviest loss, averaged 20 percent, in Froker oats in Waseca, Blue Earth, Watonwan, and Brown Counties, MINNESOTA, in 1976.

LOOSE SMUT (Ustilago nuda) infections in Wisconsin in 1976 were found in 67 of 70 winter wheat fields in Rock, Kenosha, Racine, Dodge, Washington, and Sheboygan Counties. The average prevalence was 4 percent with a field severity of 15 percent.

TAKE-ALL (Gaumannomyces graminis) infection was one of the most significant observed in WISCONSIN during a winter wheat survey in late June 1976, and probably the most economically important. Of 70 fields surveyed in Rock, Kenosha, Racine, Dodge, Washington, and Sheboygan Counties, 49 were infected.

Take-all was 40+ percent prevalent in several fields previously planted to wheat or severely infested with quackgrass. Prevalence in Kenosha and Racine Counties was greater than in 1976 and less in Washington and Sheboygan Counties. Fields were surveyed as close to harvest as possible.

INSECTS

FALL ARMYWORM (*Spodoptera frugiperda*) damaged small grains in October 1976 in the San Angelo area of TEXAS. Infestations in wheat were present by mid-September 1976 in OKLAHOMA. From late September through mid-October, heavy populations damaged young wheat in many fields in the northwest, north-central, west-central, central, southwest, and south-central areas. Some fields (less than 10 percent) were treated in all of these areas. Pupation, spraying, and cold weather brought an end to most infestations by the end of October. Infestations destroyed some wheat fields, particularly in south-central KANSAS, during October 1976. Some fields were treated. Significant infestations were most frequently encountered in Reno, Sedgwick, Kingman, Harper, Comanche, Kiowa, Clark, and Ford Counties.

Fall armyworm on rice in ARKANSAS required treating in a few fields in 1976. This species is economic on rice only when infestations are heavy overall because rice is not a primary host. Larvae appeared on rice in MISSISSIPPI during the week of August 12, 1976. Larvae, 6-8 per square foot, were reported from the Delta counties; treatments were applied. Fall armyworm in TENNESSEE damaged 539 acres of small grains in 1976; 365 acres were treated.

HESSIAN FLY (*Mayetiola destructor*) in INDIANA infested 13 percent of 260 fields surveyed in 48 counties. Of the infested fields, only 3 had infestations greater than 10 percent. The mean number of puparia per 100 stems for all surveyed wheat was 0.9, the mean for cultivars resistant to Race B Hessian fly was 0.2, and the mean for cultivars not resistant was 4.0.

WHEAT STEM MAGGOT (*Meromyza americana*) larval infestations in many wheat fields were heavier than usual in northeastern MONTANA by mid-July 1976. By late July, many growers from the eastern area were concerned. Infestations damaged up to 7 (averaged 4) percent of wheat in western NORTH DAKOTA in 1976 and 2 percent in the eastern area.

RICE WATER WEEVIL (*Lissorhoptrus oryzophilus*) slowly but consistently increased in ARKANSAS in 1976. Infestations were somewhat later than usual due to slow growth of rice resulting from cool weather and later flooding of fields.

ENGLISH GRAIN APHID (*Macrosiphum avenae*) infestations were moderate on wheat, barley, and oats in northern CALIFORNIA in 1976; treatments were applied. English grain aphid was heavy (up to 25 per head on maturing cereals) in Lincoln, Spokane, and Kittitas Counties, WASHINGTON, in 1976. Aphids, especially *Rhopalosiphum padi*, increased in the fall throughout the grain-growing areas of eastern and central Washington. English grain aphid infestations on small grains increased for the third consecutive year in NEVADA with 150+ per sweep occurring in Churchill, Humboldt, Lander, and Pershing Counties in June and July 1976. Predators effectively reduced infestations in Churchill County, but chemical controls were required on 12,836 acres in the last 3 counties, mostly in July. Infestations were light to heavy in heads of wheat particularly in eastern counties of the east-central and southeast districts of KANSAS during late May and early June 1976. English grain aphid was confused with GREENBUG (*Schizaphis graminum*); some treating was related to this confusion.

English grain aphid and *R. padi* infested wheat and oats in Stutsman County, NORTH DAKOTA, at the rate of 20 adults and nymphs per head by July 9, 1976. Infested heads ranged 6-100 (averaged 66) percent in 100 percent of the fields in Morton, Oliver, Mercer, Dunn, McKenzie, and Stark Counties by July 16. Aphids per infested head ranged 1-70 (averaged 11). Populations in the eastern and north-central parts of the State ranged from noneconomic to light on wheat, durum, barley, and oats. Controls were applied in the north-central and the western half of the State at this time. Infested heads ranged 0-100 (averaged 38) percent of late-planted wheat in Adams, Bowman, Grant, Hettinger, and Slope Counties by July 23; the number of aphids per infested head ranged 1-70 (averaged 9). Populations of *M. avenae* and *R. padi* were heavy in some southern ILLINOIS wheat fields in May 1976. Up to 100 per plant was reported from occasional fields. *M. avenae* was the most common aphid on small grains in MISSISSIPPI in 1976. April 1 infestations were 30+ per 25 sweeps of winter wheat and increased to 400+ per 25 sweeps in the northern area.

An APHID (*Rhopalosiphum padi*) ranged up to 60 per row foot of small grains in the Rolling Plains of TEXAS January 7, 1976, and continued below that level until February 13 when populations ranged up to 250 in Hardeman and Wilbarger Counties and 500 in Castro County. A gradual decrease occurred in the High Plains and Rolling Plains with no reports after March 5. *R. padi* infested wheat in OKLAHOMA through early May 1976, averaging 50 or less per row foot in most areas. Fall activity began in the west-central area in late October. *R. padi* ranged 300-400 per plant in some small grain fields in SOUTH DAKOTA in 1976. No economic thresholds have been established. This species and ENGLISH GRAIN APHID (*Macrosiphum avenae*), normally heavy in wheat only in the southwest corner, were heavy on small grains in 1976 through the central and even into the northern districts of INDIANA. Counts became heavy too close to harvest to be of consequence.

BROWN WHEAT MITE (*Petrobia latens*) infestations on winter wheat in Pershing County, NEVADA, in 1976 were above the 1975 level but lighter than in 1974. Populations began increasing in late March when 20-30 mites per plant were present. Infestations continued to increase, caused heavy damage in early April, and required treatment on 1,074 acres. Infestations were first reported on small grains from the Rolling Plains of TEXAS in early February 1976. Populations of 200 per row foot were common in the High Plains, Panhandle, and Rolling Plains on March 5. Populations peaked 14 days later at about 1,000 per row foot and gradually decreased until May 28. Infestations were present in scattered areas in the western half of OKLAHOMA from early February to mid-April 1976. Heavy infestations developed in some spots in the southwest counties in late March and in the west-central counties in early April. Infestations were heavier than usual on wheat in KANSAS in late winter and early spring in the western area in 1976. This pest was of some concern to growers, especially in the southwest district.

WINTER GRAIN MITE (*Penthaleus major*) populations were light at the beginning of 1976 in the Rolling Plains of TEXAS. Infestations gradually increased to 50-700 per row foot March 11 in many Rolling Plains counties. A gradual decrease occurred with the last reports on April 30.

TURF, PASTURES, RANGELAND

Highlights

FALL ARMYWORM damage was extensive in south-central and other areas of Texas, in the eastern three-fourths of Oklahoma, and throughout Mississippi. RANGE

CATERPILLAR larvae were found for the first time in Oklahoma. Losses due to a SOD WEBWORM almost totaled \$2 million in Maryland. Severe damage by a SCARAB continued for the third year in Ohio. GRASS BUGS infested thousands of acres in Utah. Infestations ranged up to 300 per square yard in Wyoming.

DISEASES

MELTING OUT (*Helminthosporium vagans*) became particularly common on turf during late season wet weather in the southern portions of RHODE ISLAND in 1976.

INSECTS

FALL ARMYWORM (*Spodoptera frugiperda*), 10+ per square foot, suddenly appeared in coastal pastures throughout south-central TEXAS in late September 1976. Damage continued on lawns, pastures, and gardens throughout this area until frost. Infestations extensively damaged bermudagrass and St. Augustinegrass lawns, especially in the Blacklands, south-central, and gulf coast areas in August and September 1976. Moderate to heavy infestations in OKLAHOMA were found in pastures and lawns on the southern border by mid-July 1976. Wide-spread heavy infestations were present over the eastern three-fourths of the State during August and September. At least 2 generations of larvae were involved. Bermudagrass was most commonly infested, but damage was also reported on millet, fescue, and several weedy grasses in lawns. Infestations in grasses were much earlier than usual this year, seldom reported before early September in past years.

Fall armyworm was the main pest of pastures and meadows in ARKANSAS in 1976. The first seasonal occurrence was about July 1 in the extreme southern area on Coastal bermudagrass. Later in the season, infestations occurred in pastures, meadows, alfalfa, and lawns as far north as the middle of the State with scattered infestations in the north area. Infestations would have been much heavier statewide had normal rainfall occurred. Infestations in MISSISSIPPI caused extensive damage to all types of pastures and lawns statewide in 1976. The first specimen appeared during the last week of June in Jefferson Davis County on Coastal bermudagrass pasture; a 40 percent infestation was reported. Populations moved from the southern to the northern area and remained heavy until a decrease was noted during the last of September. An infestation of 27-117 per square foot was observed in Yalobusha County, July 29. This insect was much heavier during 1976 than in 1975. Fall armyworm in TENNESSEE damaged 273 (209 were treated) acres of pastures and turf and 332 (287 were treated) acres of hay. Infestations were moderate to heavy in golf courses and pastures planted to rye in SOUTH CAROLINA in the late summer of 1976. Rain delayed some insecticide applications and a good deal of damage resulted in some cases.

RANGE CATERPILLAR (*Hemileuca oliviae*) infestations were found in rangeland in western Cimarron County, OKLAHOMA, June 29, 1976. During July, infestations were found on 48 sections involving 30,720 acres. Most areas averaged less than one per square yard. This was the first report of larvae in Oklahoma. Adult activity was noted in mid-October.

WESTERN TENT CATERPILLAR (*Malacosoma californicum*), 8+ per stem, caused moderate to heavy damage to bitterbrush on about 2,800 acres of rangeland in areas of Elko, Humboldt, and Washoe Counties, NEVADA, in late May through early July 1976.

Larvae of an ARCTIID MOTH (Arachnis zuni) caused concern to NEW MEXICO range-land managers in Lincoln, Sierra, Santa Fe, Socorro, and Torrance Counties in 1976. Considerable defoliation was observed on salt bush (Atriplex), globe mallow (Sphaeralcea), winter fat (Eurotia), and several lesser forbes.

A SOD WEBWORM (Pediasia trisecta) heavily damaged 500 acres of bluegrass sod, causing losses in excess of \$800,000 in MARYLAND in 1976. Spotty damage to home lawns ranged moderate to heavy in several areas of Montgomery, Prince Georges, and Baltimore Counties. Losses to home lawns exceeded \$1 million.

Larvae and adults of a SCARAB (Ataenius spretulus) severely damaged annual bluegrass and bentgrass golf course fairways at several locations in OHIO for the past 3 years. In Hamilton and Clermont Counties (Cincinnati area), adult flight activity began in 1976 the last week of March. Adults ranged 6-10 per square foot in the thatch layer during April. Eggs were present May 5, and first and second instar larvae by May 18 and 26, respectively. The first summer generation reached a maximum of 240 per square foot in untreated areas the last week of June. Pupae were detected June 23. Newly emerged adults were present in soil samples July 1. The second summer generation began August 11 and reached a maximum average density of 106 per square foot August 24. The second summer generation was much reduced compared with the first generation.

Overwintered adults of BLUEGRASS BILLBUG (Sphenophorus parvulus) averaged 6 per square foot in lawns and commercial sod fields in Douglas County, NEBRASKA, May 6-10, 1976. Larval feeding damage became noticeable in the eastern one-third of the State by June 20. Larvae averaged 25 per square foot on a Douglas County sod farm on July 1, and 18 per square foot in a commercial sod field in Cass County August 6. This pest of lawns continued to become more of a problem in NEW HAMPSHIRE from year to year. Most of the lawns with noticeable infestations were found in the seacoast region, in 1976, primarily in towns bordering the ocean.

A WEEVIL (Hyperodes maculicollis) severely damaged several golf courses and one racetrack at Nashua, Hillsborough County and Derry, Rockingham County, NEW HAMPSHIRE in 1976. Feeding damage resulted in 20-30 percent destruction of turf on the golf courses. Damage was concentrated at these two sites; problems were not reported elsewhere in the State. Most damage occurred in late July.

A GRASS BUG (Labops hesperius) seriously infested many thousands of planted range grasses in the higher areas of UTAH again in 1976. The most extensive outbreak occurred on 15,000 acres in the Cedar Mountain area of Iron County. Treatments were applied to 4,000 acres in the Garfield and Kane areas; 11,000 acres in the general Wales Canyon area in Sanpete and Juab Counties; and 10,000 acres near Wales, Sanpete County, in the Uintah National Forest. Extensive areas were infested in Utah, Morgan, Piute, Sevier, and Weber Counties. In the lower areas, a combination of Labops spp., L. hesperius, Irbisia pacifica, I. brachycerus, I. shulli, and L. utahensis damaged to varying degrees range grasses in the northern area and in the lower valleys about the State. Much acreage was severely damaged through the black grass bug infestation, such as the Beaverdam, Snowville, and White Valley, Box Elder County areas, primarily by I. pacifica. L. hesperius was noted at 140 per square yard on crested wheatgrass in Platte County, WYOMING, in early May 1976. Infestations ranged 0-300 per square yard in Laramie, Platte, Goshen, and Sheridan Counties, and averaged 0.60 per square yard on crested wheatgrass in Laramie County. The following counts per square yard were found in these counties: Niobrara 50, Campbell 50-80, and Platte 30-40. L. hesperius ranged up to 30 per sweep in 14 wheatgrass pastures surveyed in the NEBRASKA Panhandle May 4, 1976. Some pastures suffered severe losses and adjacent wheat fields were damaged in some instances.

SOUTHERN CHINCH BUG (Blissus insularis) infestations decreased somewhat in importance but still caused several million dollars in losses and control costs on St. Augustinegrass in FLORIDA. Some of the population in southern Palm Beach County and northern Broward County in 1976 have been shown by field and lab tests to have complete resistance to organophosphates; carbamates are still effective. HAIRY CHINCH BUG (B. leucopterus hirtus) nymphs and adults were present and feeding in lawns in the eastern counties of MASSACHUSETTS July 21, 1976. Nymphs and adults were very heavy in eastern lawns in early August. Infestations continued to increase in NEW HAMPSHIRE in 1976. The first reports came in mid-May from Milford, Hillsborough County, where residential lawns were extensively damaged. Reports in mid-June came from Litchfield and Manchester, Hillsborough County, and Concord, Merrimack County, where extensive damage to lawns also occurred. In late July reports of lawn damage were received from Coos County, where damage usually is not noticeable. The second generation of chinch bugs caused moderate damage to lawns in Dover in mid-August, but no other reports of damage by the second generation were received.

MEADOW PLANT BUG (Leptopterna dolabrata) infestations in bluegrass seed fields in Spokane County, WASHINGTON, caused 78 percent "white top" during 1976 in areas not burned in 1975.

The heaviest infestations of CLOVER MITE (Bryobia praetiosa) in at least 5 years was noted during 1976 in RHODE ISLAND. Direct damage to turf was noted in several widely separated areas.

Identification of Adults of the Three European
Species of Arhopalus--rusticus rusticus, ferus,
and syriacus (Coleoptera: Cerambycidae)

T.J. Spilman 1/

ABSTRACT. An illustrated determination key to adults of the three species of Arhopalus occurring in Europe is given. Morphological diagnoses also provide specific comparisons. These economically important wood borers are often intercepted at United States ports of entry.

The three European species of the genus Arhopalus Audinet-Serville, rusticus rusticus (Linnaeus), ferus (Mulsant), and syriacus (Reitter), are economically important wood borers. These pests are often intercepted at United States ports of entry and are occasionally confused by taxonomists.

Although Lagar (1969) presented a key to the adults of these species for Spain, Portugal, and the Balearic Islands, his separation of rusticus rusticus from syriacus by the elytral apex and setae on the eyes cannot always be used confidently. Sutural angles of the elytra are, as stated by Lagar, variable in rusticus rusticus, and setae of the eyes are, contrary to the statement by Lagar, present. Consequently, I have examined these three species and have devised a new key. My morphological diagnoses and accompanying illustrations should also help to identify each species. Each character in a diagnosis is numbered for making comparisons.

Because several of the morphological characters given below are sexually dimorphic, it is important to be able to distinguish the sexes externally. Three structures can be used: Antennae are longer in males than in females, in males reaching at least the middle of the 2nd abdominal sternum, in females reaching no farther than the apex of the 1st abdominal sternum; tarsi, especially the protarsi, are slightly broader in males than in females; and most obvious, the 5th visible sternum is as long as its tergum in the female, but the sternum is much shorter than its tergum in the male, exposing the apices of the male parameres.

Although the primary objective of this article is identification, I must mention a matter of classification uncovered in my studies. The depth of emargination of the 3rd article of the metatarsi has been stressed in keys. Lagar used it in the first couplet of his key, suggesting syriacus to be related to rusticus rusticus, not to ferus. This relationship, however, is not indicated when all characters in my diagnoses are used. Actually syriacus is more similar to ferus than to rusticus rusticus, and in some respects ferus is intermediate. This evidence, though not as obvious as that of the tarsi, probably delineates a truer relationship.

Incidentally, Lagar used the incorrect name Criocephalus Mulsant for this genus; Linsley (1962:68) used the correct name Arhopalus and gave synonymy and type-species. Also, Lagar did not use the subspecies status for rusticus.

1/ Systematic Entomology Laboratory, IIBIII, ARS, USDA. Mail address:
c/o U.S. National Museum of Natural History, Washington, DC 20560.

Key to Adults of Arhopalus of Europe and the Mediterranean Area

1. Third article of metatarsi dorsally emarginate almost to base (Fig. 4, 6); lateral edge of elytra at posterior third in cross section obviously convex (Fig. 11), slightly convex or flat (Fig. 13); elytra with sutural angles angulate (Fig. 7), rounded or almost rounded (Fig. 8, 10); eye with long, dense, obvious setae, or with short, sparse, obscure setae . . 2
- 1'. Third article of metatarsi dorsally emarginate to approximately half length (Fig. 5); lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 12); elytra with sutural angles rounded (Fig. 9); eye with short, sparse, obscure setaeferus (Mulsant)
- 2(1). Lateral edge of elytra at posterior third strongly convex (Fig. 11); elytra with sutural angles angulate or almost rounded (Fig. 7, 8); eye with long, dense, obvious setae rusticus rusticus (Linnaeus)
- 2'. Lateral edge of elytra at posterior third flat or only slightly convex (Fig. 13); elytra with sutural angles rounded (Fig. 10); eye with very short, sparse, obscure setae syriacus (Reitter)

Arhopalus rusticus rusticus (Linnaeus)

1. Eye narrower than in ferus or syriacus, distance from lower lobe of eye to edge of buccal cavity equal to or more than diameter of base of 3rd antennal article. 2. Eye with setae long, dense, and obvious. 3. Male antenna reaching to middle of 2nd visible abdominal sternum; female antenna reaching to metacoxa. 4. Male antenna with moderately long setae ventrally, length of setae on 3rd article equal to or less than diameter of 9th article. 5. Maxillary palpus with last article narrow (Fig. 1). 6. Lateral edge of elytra at posterior third in cross section strongly convex (Fig. 11). 7. Elytra with sutural angle usually angulate, sometimes with weak spine, or occasionally almost rounded (Fig. 7, 8). 8. Metatarsus with 3rd article emarginate almost to base (Fig. 4). 9. Male with 8th tergum evenly rounded, truncate, or very slightly emarginate at apex (Fig. 20). 10. Parameres long and very narrow (Fig. 14). 11. Penis narrow, narrower than in either ferus or syriacus (Fig. 17). 12. Ovipositor with 2 narrow styli at apex (Fig. 23).

Distribution: Europe. [Four subspecies of rusticus occur in the United States, as recorded by Linsley (1962:73) and Chemsak and Linsley (1965:141). The subspecies rusticus rusticus does not occur in North America.]

Arhopalus ferus (Mulsant)

1. Eye wider than in rusticus rusticus, distance from lower lobe of eye to edge of buccal cavity less than diameter of base of 3rd antennal article. 2. Eye with setae very short, sparse, and obscure. 3. Male antenna reaching to middle of 2nd visible abdominal sternum; female antenna reaching to metacoxa. 4. Male antenna with moderately long setae ventrally, length of setae on 3rd article equal to or less than diameter of 9th article. 5. Maxillary palpus with last article moderately wide (Fig. 2). 6. Lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 12). 7. Elytra with sutural angle rounded (Fig. 9). 8. Metatarsus with 3rd article emarginate to approximately half length (Fig. 5). 9. Male with 8th tergum deeply emarginate at apex (Fig. 21). 10. Parameres short, broader than in rusticus rusticus, and slightly narrower than in syriacus (Fig. 15). 11. Penis broad, slightly broader than in syriacus (Fig. 18). 12. Ovipositor with 2 broad styli at apex (Fig. 24).

Distribution: Europe, Siberia.

Arhopalus syriacus (Reitter)

1. Eye wider than in rusticus rusticus, distance from lower lobe of eye to edge of buccal cavity usually equal to diameter of base of 3rd antennal article.
2. Eye with setae very short, sparse, and obscure.
3. Male antenna reaching 5th visible abdominal sternum; female antenna reaching apex of 1st visible abdominal sternum.
4. Male antenna with long setae ventrally, length of setae on 3rd article greater than diameter of 9th article.
5. Maxillary palpus with last article broad (Fig. 3).
6. Lateral edge of elytra at posterior third in cross section flat or only slightly convex (Fig. 13).
7. Elytra with sutural angle rounded (Fig. 10).
8. Metatarsus with 3rd article emarginate almost to base (Fig. 6).
9. Male with 8th tergum shallowly emarginate at apex (Fig. 22).
10. Parameres short, broader than in rusticus rusticus, and slightly broader than in ferus (Fig. 16).
11. Penis broad, slightly narrower than in ferus (Fig. 19).
12. Ovipositor with 2 narrow styli at apex (Fig. 25).

Distribution: Mediterranean area.

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- Linsley, E.G. 1962. The Cerambycidae of North America. Part II. Univ. California Pub. Entomol. 19:1-102, illus.

RUSTICUS RUSTICUS (L.)

FERUS (MULSANT)

SYRIACUS (REITTER)

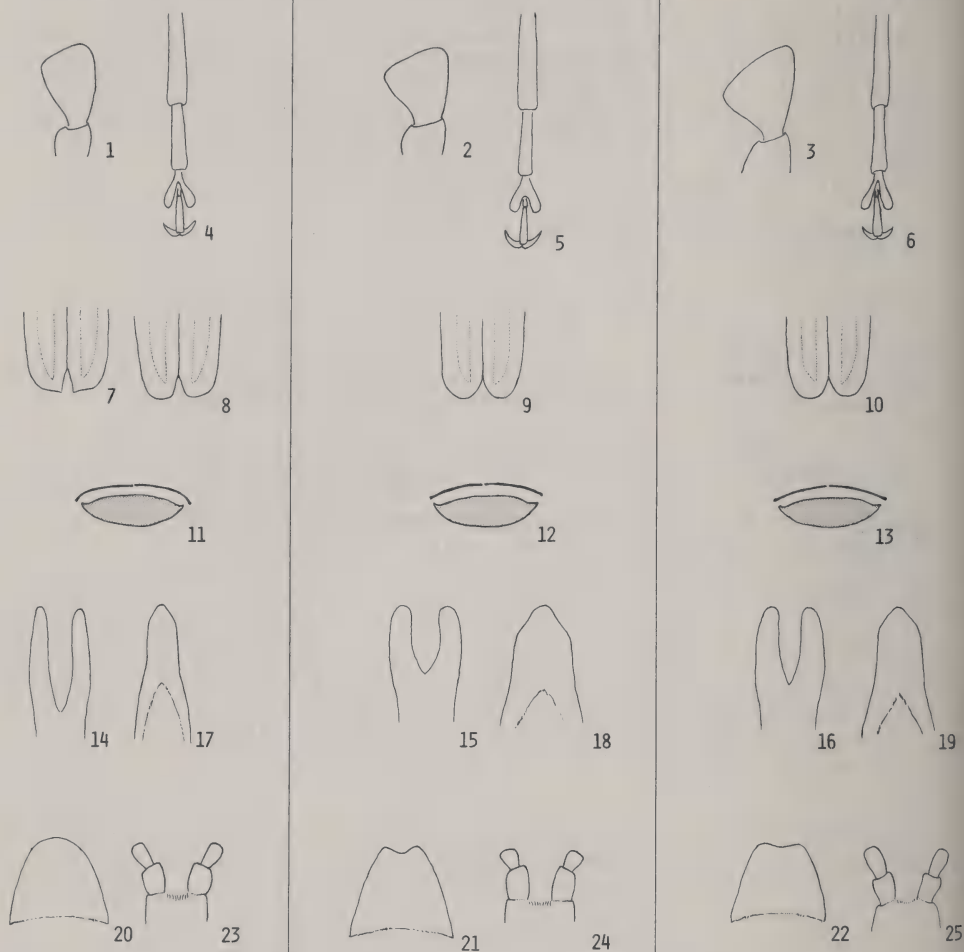


Fig. 1-25, *Arhopalus rusticus rusticus* (L.), *A. ferus* (Mulsant), and *A. syriacus* (Reitter). 1-3, last segment of maxillary palpus. 4-6, metathoracic tarsus. 7-10, apex of elytra. 11-13, cross section of elytra and abdomen at posterior third of elytra, diagrammatic. 14-16, apex of parameres. 17-19, apex of penis. 20-22, 8th tergum of male. 23-25, apex of ovipositor.

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2(10):127-130, 1977

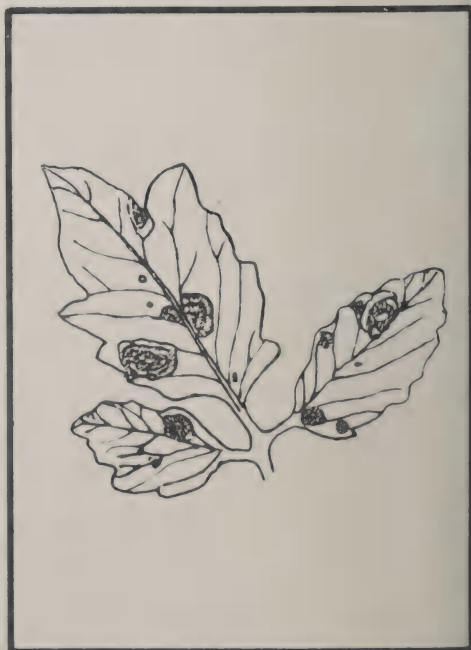
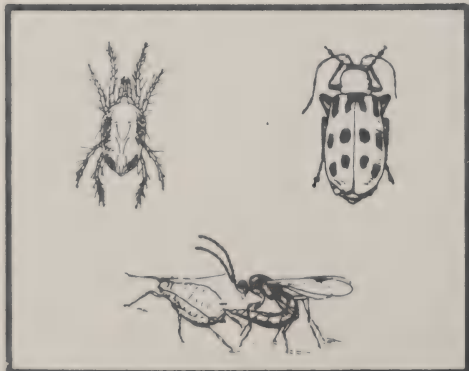
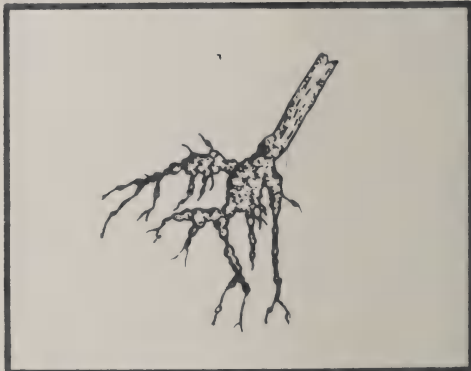
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Cooperative **PLANT PEST REPORT**

*"Purchased by United States
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**Animal
and Plant
Health
Inspection
Service**

**U.S.
DEPARTMENT
OF AGRICULTURE**



This publication is distributed weekly to Federal and State agencies, universities, farmers, and others interested in containing or controlling pests in the United States.

Data included in this publication are compiled from reports submitted by cooperating State, Federal and other agricultural and industrial specialists. Accuracy of the reports is not verified prior to publication.

Cooperative Plant Pest Report supersedes *Cooperative Economic Insect Report*, which was discontinued with Volume 25, Numbers 49-52, 1975.

Correspondence should be directed to:

CPPR

New Pest Detection and Survey Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
Federal Building #1
Hyattsville, Maryland 20782

COOPERATIVE PLANT PEST REPORT

HIGHLIGHTS

Current Conditions

GREENBUG 100+ per row foot in parts of southwestern Oklahoma and the adjoining area in Texas. (p. 133).

Winter survey for CHINCH BUG in Kansas revealed severe numbers in 4 counties in the central, east-central, and southeast districts. (p. 135).

Detection

New State record for MEADOW SPITTLEBUG in Nebraska. (p. 144).

For new county records see page 136.

Some First Occurrences of the Season

GREENBUG and WINTER GRAIN MITE in Kansas. MORMON CRICKET nymphs in Idaho. ALFALFA WEEVIL larvae and CLOVER LEAF WEEVIL larvae in Kansas. TARNISHED PLANT BUG adult in Oklahoma. NANTUCKET PINE TIP MOTH adults in Alabama. CLOVER MITE adults in California. APHIDIID WASP adults in Oklahoma.

Special Reports

Summary of Pest Conditions in the United States - 1976

Forage Legumes. (p. 138-147).

Soybeans. (p. 147-148).

Peanuts. (p. 148-149).

Cotton. (p. 149-152).

Distribution of Alfalfa Weevil (map). (p. 140).

Distribution of Blue Alfalfa Aphid (map). (p. 145).

Distribution and Identification of Blue Alfalfa Aphid, Acyrtosiphon kondoi, Shinji (Homoptera: Aphididae). (p. 153-156).

Reports in this issue are for the week ending March 11 unless otherwise indicated.

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SPECIAL PESTS OF REGIONAL SIGNIFICANCE

INSECTS

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae, 0.5-1 inch long, averaged 0.2 per square foot of 4-inch, 7-tiller wheat in Kingman County, concentrated along field border. (Bell).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light near Roswell, Chaves County; 2 per wheat plant in one wheat field. (NM Coop. Rep.). TEXAS - Counts per row foot of small grains by date and county: February 28--Hardeman, Knox, Stonewall, Throckmorton, and Young ranged 1-25, Fisher ranged 26-250 in some fields; March 7--Archer, Baylor, Fisher, Foard, Hardeman, Motley, Throckmorton, Wichita, and Young ranged 2-50 in many fields, Fisher, Foard, Motley, Kent, and Wichita ranged 100-300 in few fields, 400-800 in damaged spots (Boring); and March 8--south-central area increased (Cole). OKLAHOMA - Counts per row foot of wheat by county: Washita and Beckham 0-5,000; Caddo light; Kiowa, Jackson, and Greer very light in some areas, Greer up to 700, Jackson up to 600, Kiowa up to 160; Tillman 10-120; Lincoln 7; Pottawatomie 7; McClain 0.25 and 8; Seminole 0.5; Garvin 17 and 35; Murray 1 and 12; Carter 110; Johnson 1; Marshall 30; and Bryan 110. (OK Coop. Surv.). KANSAS - First of season trace in field of 4-inch, 7-tiller wheat in Chautauqua County. (Bell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Moderate to heavy on alfalfa in scattered areas with one fall-planted field averaging 3,000 per row foot in Washita County. Other averages per square foot by county: Garvin 15, Bryan 3, and Choctaw 3. (OK Coop. Surv.).

CORN, SORGHUM, SUGARCANE

INSECTS

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - KANSAS - Three overwintered larvae found in 50 previously infested cornstalks in one pastured field in Sedgwick County; these surviving larvae appeared weak and flaccid. (Bell).

SMALL GRAINS

DISEASES

SOIL-BORNE WHEAT MOSAIC VIRUS - OKLAHOMA - Infected 10 percent of wheat in Garfield, Kay, Kingfisher, Major, Noble, and Payne Counties. (OK Coop Surv.). KANSAS - Appeared in wheat in parts of south-central and central areas. Percent plants infected in fields surveyed by county: Sedgwick 5-50, Sumner trace to 10, Harper 15-20, Barber trace, Kingman trace to 60, Reno 10, Rice 5, and Harvey 10. Symptoms in about 20 percent of fields surveyed. Wheat in tillering stage and 4-5 inches tall. No symptoms in smaller wheat in area. (Bell).

WHEAT POWDERY MILDEW (Erysiphe graminis var. tritici) - OKLAHOMA - Trace in 4 wheat fields in Muskogee County. (OK Coop. Surv.).

INSECTS

AN APHID (Rhopalosiphum padi) - TEXAS - Counts per row foot of small grains by date and county: February 28--Fisher and Wichita ranged 1-5 in few fields; and in most fields March 7--Foard, Motley, and Wichita ranged 1-25, Motley up to 100, and Wichita up to 64. (Boring). OKLAHOMA - Light to moderate in Jackson and Greer Counties and light in Kiowa and Tillman Counties. (OK Coop. Surv.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Heavy in many wheat fields in Washita and Beckham Counties. Some fields have both this and WINTER GRAIN MITE (Penthaleus major). Much damage in some fields. Petrobia latens moderate to heavy in one field in Greer County last period but decreased to 10 per row foot this period. Light to moderate in Jackson County; up to 8 per leaf in irrigated wheat in Texas County. Penthaleus major 1-8 per row foot in few fields in Lincoln, Pottawatomie, Murray, and Johnson Counties. (OK Coop. Surv.).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - First of season under clods in wheat field in Harvey County March 9. (Bell).

TURF, PASTURES, RANGELAND

INSECTS

MORMON CRICKET (Anabrus simplex) - IDAHO - First nymphs of season hatched at Teapot Basin, Elmore County, February 18. (Pollard).

FORAGE LEGUMES

INSECTS

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Second and third instar larvae active in Artesia area, Eddy and Chaves Counties, week ending March 4. Larvae 3-5 per crown (15 stems) on grazed fields. Frost will probably cause more damage than larvae will in next 30 days. Currently, second and third instar larvae continued active in Eddy and Chaves Counties; little damage apparent. (NM Coop. Rep.). OKLAHOMA - Larvae in alfalfa terminals in southern half of State. Infested terminal counts by county: Greer 3-18 percent (1-6 larvae per terminal), Jackson 0-15 percent, Harmon light, Tillman light, Washita 5-25 percent, Grady 10 percent, Garvin 0.5-10 percent in most fields but 50 percent in one field, Stephens 3-24 percent, Murray 16 percent, Bryan 14 percent, Muskogee one percent, and Choctaw 4 percent. Eggs continued light in Grady and Stephens Counties, averaging about 15 per square foot. (OK Coop. Surv.). KANSAS - Adults averaged 3 per 100 sweeps of dead alfalfa stems in Chase County field March 8. First larvae (first instars) of season trace on one to two-inch alfalfa in Greenwood, Montgomery, and Elk Counties. Larval averages per green stem by county (one field per county): Greenwood 0.04, Elk 0.04, and Montgomery 0.02. (Bell). KENTUCKY - Eggs averaged 4.8 and 16.4 per square foot in 2 alfalfa fields in Warren County February 8 and 10; 4.0 per square foot in Larue County field February 9; and 6.4 and 4.4 per square foot in 2 Shelby County fields March 7. (Christensen et al.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - First larvae (up to 0.25 inch) of season averaged 0.06 per green stem on one-inch alfalfa in Barber County. (Bell).

BLUE ALFALFA APHID (Acyrtosiphon kondoi) - CALIFORNIA - Nymphs and adults collected on Medicago sativa (alfalfa) at Soledad, Monterey County, by B. Oliver and R. Hobza, April 1, 1976. Adults collected on Medicago sativa (alfalfa) at Valyermo, Los Angeles County, by D. Williams, J. Heuer, and G. Mork, April 6, 1976. Both determined by T. Kono. New county records. (CA Pest Rep.). NEW MEXICO - Nymphs of this species and PEA APHID (A. pisum) up to 30 per trifoliate leaf on one in 10 stems on Dona Ana County alfalfa. Slightly lighter near Roswell and East Grand Plains, Chaves County, with 15-20 per trifoliate leaf and appearing on one in 20 stems. Populations appear 80 percent A. kondoi and 20 percent A. pisum. (NM Coop. Rep.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Averages per square foot of alfalfa by county: Garvin 15, Bryan 30, Choctaw 20, and Muskogee 2. Light to moderate in Washita County. (OK Coop. Surv.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - First adult of season on alfalfa in Muskogee County this period. (OK Coop. Surv.).

FOREST AND SHADE TREES

INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - First adults of season, 1-10 per 6-foot shortleaf pine at Auburn, Lee County, March 8. (McQueen).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - KENTUCKY - Harsh winter weather appears to have reduced overwintering population in southern area. Of 220 larvae and pupae dissected from bark samples, none alive. Samples taken from 5 shortleaf pines and one Virginia pine near Pineville, Bell County, January 31 and March 3. Trees known to have active larval broods in November 1976. (Nordin).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Flights of male moths heavy at Wichita, Sedgwick County, and Rossville, Shawnee County. (Bell).

MAN AND ANIMALS

INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - First adults of season at Fresno, Fresno County. (CA Pest Rep.).

BENEFICIAL ORGANISMS & THEIR ENEMIES

INSECTS

AN APHIDIID WASP (Lysiphlebus testaceipes) - OKLAHOMA - First adults of season in wheat in Jackson and Greer Counties. Parasitized less than one percent of Schizaphis graminum (greenbug) and oat aphids. (OK Coop. Surv.).

FEDERAL AND STATE PROGRAMS

INSECTS

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Results of 1977 Winter Survey of overwintering populations in bunchgrass indicated heavy infestations most likely to occur in wheat, sorghum, corn, and lawns in at least some areas in the following counties: Marion, McPherson, Morris, Butler, Cowley, Harvey, Sedgwick, Dickinson, Geary, Riley, Republic, Washington, Marshall, Brown, Doniphan, and Lyon. Most serious infestations expected in parts of Morris, Marion, McPherson, and Cowley Counties. Threat of damaging infestations in 1977 could be canceled or reduced by a naturally occurring fungus Beauveria globulifera with warm, humid weather, and by frequent beating rains, impeding hatch and survival of young nymphs. (Bell).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Trapping activities on schedule. High winds caused some damage and loss of traps, and delayed treatments. Status of treatment by area week ending March 11: Hollywood fifth treatment completed, central Los Angeles sixth treatment completed, La Crescenta seventh treatment completed, Santa Monica seventh treatment 50 percent completed, Pico Rivera eighth treatment 60 percent completed, and Inglewood ninth treatment 50 percent completed. (CA Pest Rep.).

SCREWWORM (*Cochliomyia hominivorax*) - No cases reported from continental U.S. February 20-26; only one case has been reported this year. Total of 76 cases confirmed in portion of Barrier Zone in Republic of Mexico. Total of 784 cases reported in Mexico south of Barrier Zone. Number of sterile flies released this period totaled 123,099,000, all in Texas. Total of 132,661,000 sterile flies released within Barrier of Mexico. (Vet. Serv.).

HAWAII PEST REPORT

General Vegetables - LEAFMINER FLIES (*Liriomyza* spp.) heavy on 3 acres of green onions (60-75 percent of leaves moderately mined) at Waianae Valley, Oahu, and on 2 acres of tomatoes at Kihei, Maui. Light to moderate on another 5 acres of tomatoes (younger fruiting plants) at Kihei, on 3 acres of pole beans at Waianae Valley, and on one acre of tomatoes, 2 acres of green onions, 0.25 acre of hyotan squash, and 2 acres of bulb onions at Lualualei, Oahu. (Miyahira, L. Nakahara). CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) severe (all leaves; 100+ mites per square inch) on one acre of pole beans at Waianae Valley. Ranged moderate to heavy on another 0.5 acre of young pole beans at Waianae Valley and on 3 acres of eggplants at Kapahi, Kauai. BROAD MITE (*Polyphagotarsonemus latus*) counts heavy (90 percent of terminals affected) and damage moderate on 2 acres of green peppers at Lualualei. (L. Nakahara). CHINESE ROSE BEETLE (*Adoretus sinicus*) damage heavy (80 percent of leaves; 10-70 percent defoliation per leaf) on plantings of snap beans and eggplants at Kaumakani, Kauai. (Sugawa).

Snail Pests - GIANT AFRICAN SNAIL (*Achatina fulica*) activity declined in various localities on Kauai during February, partly due to dry conditions and baits. No new snails from Kekaha, Kauai (most recent infestation), since baiting initiated. (Sugawa). Total of 6,561 specimens of BROWN GARDEN SNAIL (*Helix aspersa*) collected as of February 28 from infestation site at Waimea, Hawaii Island, to eradicate this pest. During last 5 weeks (10 collection dates) of the data period, 432 snails discovered. Of this number, 17 percent of snails were 21 mm or larger. Unusually dry conditions in treatment area hampered eradication program. (Entomol. Branch, State Dep. Agric.).

DETECTION

NEW STATE RECORDS

INSECTS

MEADOW SPITTLEBUG (*Philaeus spumarius*) - NEBRASKA - Saunders County. (p. 144).

NEW COUNTY RECORDS

DISEASES

SOYBEAN CYST NEMATODE (*Heterodera glycines*) - TENNESSEE - Trousdale (p. 147).

INSECTS

BLUE ALFALFA APHID (*Acyrtosiphon kondoi*) - CALIFORNIA - Monterey and Los Angeles (p. 134); KANSAS - Pottawatomie (p. 146).

ALFALFA WEEVIL (*Hypera postica*) - NORTH DAKOTA - Richland, Sargent (p. 141); TEXAS - Hudspeth, Culberson, El Paso (p. 139).

Pest Interceptions of Quarantine Significance at Ports of Entry

Plant Importation and Technical Support Staff
Plant Protection and Quarantine Programs, USDA

<u>Life Stage</u>	<u>Host</u>	<u>Probable Origin</u>	<u>Port of Entry</u>	<u>Destination</u>
<u>Puccinia horiana</u> P. Henn. a rust Det. W.H. Taussig	uredial	Korea	Anchorage	SC
<u>Uromyces vicia fabae</u> (Pers.) Schroet. a rust Det. J. Litton	uredial	Peru	Mobile	AL
<u>Aleurolobus rhododendri</u> Takah. a whitefly Det. M. Stoetzel	pupal	Japan	San Francisco	MD
<u>Camponotus sexguttatus</u> (Fabricius) an ant Det. D.R. Smith	adult	Brazil	Savannah	NC
<u>Cossus cossus</u> Linnaeus a cossid moth Det. C.E. Miller	larval	Italy	San Juan	PR
<u>Haemaphysalis</u> sp. a hardbacked tick Det. R.R. Gerrish	nymph	Portugal	Baltimore	MD
<u>Trogoderma granarium</u> Everts khapra beetle Det. J.M. Kingsolver	larval, adult	unknown	Port Arthur	---
<u>Vinsonia stellifera</u> (Westwood) a soft scale Det. C.E. Miller	adult	U.S. Virgin Islands	St. Croix	FL

FORAGE LEGUMES

Highlights

ALFALFA WEEVIL was serious on alfalfa in Washington. Infestations in New Mexico extended southward. Larval infestations were heavy in Oklahoma. Significant amounts of damage occurred in parts of Nebraska. Problems were severe on alfalfa in Iowa; treatments were needed in almost all fields in the southern area. The estimated dollar loss in Illinois was about \$3 million. Damage to alfalfa in Ohio was heavier than in the past 2 years. FALL ARMYWORM infestations were moderate to heavy and widespread in Oklahoma. BLUE ALFALFA APHID was heavy in California and Nevada.

INSECTS

ALFALFA WEEVIL (*Hypera postica*) continued as a serious pest on alfalfa in timothy and alfalfa stands in Kittitas County, WASHINGTON, in 1976. Alfalfa weevil infestations were light throughout the seed alfalfa areas of Washington in 1976. An unusually heavy (10 per sweep) late season adult population caused extensive leaf notching in one field in Walla Walla County. Development and infestations on alfalfa in NEVADA in 1976 generally followed those of 1975, but less acreage required treatment than in that year. Egg laying, hatch, and larval development were again later than usual. Eggs were first observed in the central, northern, and western areas in late April and early May. Larvae were first observed in mid-May. Larval infestations developed slowly and over an extended period with peak populations occurring in early to mid-June. Larval populations were reduced with the heaviest infestations generally less than 70 per sweep. Chemical controls were applied to about 41,000 acres of hay and seed alfalfa from mid-May to mid-June with the majority receiving treatment in late May and early June. By comparison, 90,000+ acres were treated in 1974 and about 51,000 acres were treated in 1975.

Alfalfa weevil infestations increased slowly in forage legumes in the spring of 1976 in northern and central UTAH. Populations were lighter than normal but heavier than in 1975. The first crop injury was lighter than normal. Much stubble control was done to prevent a later population increase. Damage will probably exceed \$3 million. Populations were light to moderate throughout the alfalfa areas of IDAHO in 1976. Treatment was applied in only a few cases which is very abnormal. Adults first appeared in 1976 in MONTANA on alfalfa in Cascade and Blaine Counties May 26. No larvae or damage could be found. On June 9, adults were mating in Chouteau County and nearly 20 larvae per sweep with heavy damage were evident in Broadwater County. By June 15, heavy infestations were reported in the northeast area. Harvesting operations in lieu of chemical controls were impaired by very wet weather. By July 2, damage was heavy in some alfalfa fields in the central and southeast areas.

The first alfalfa weevil larvae of the season were collected in Chaves County, NEW MEXICO, during the week of March 5, 1976, and in Dona Ana County, March 18. By April 30, larvae at the rate of 2 per sweep were collected at Socorro area, Socorro County, extending the southward range by about 30 miles. Populations ranged 3-5 per 25 sweeps in Bernalillo County by this time. A westward movement into the Hondo Valley of Lincoln County from Chaves County was noted in early May. Up to 150 larvae and 4 adults per 25 sweeps were common with noticeable damage in Valencia and Bernalillo Counties. Alfalfa weevil populations in most

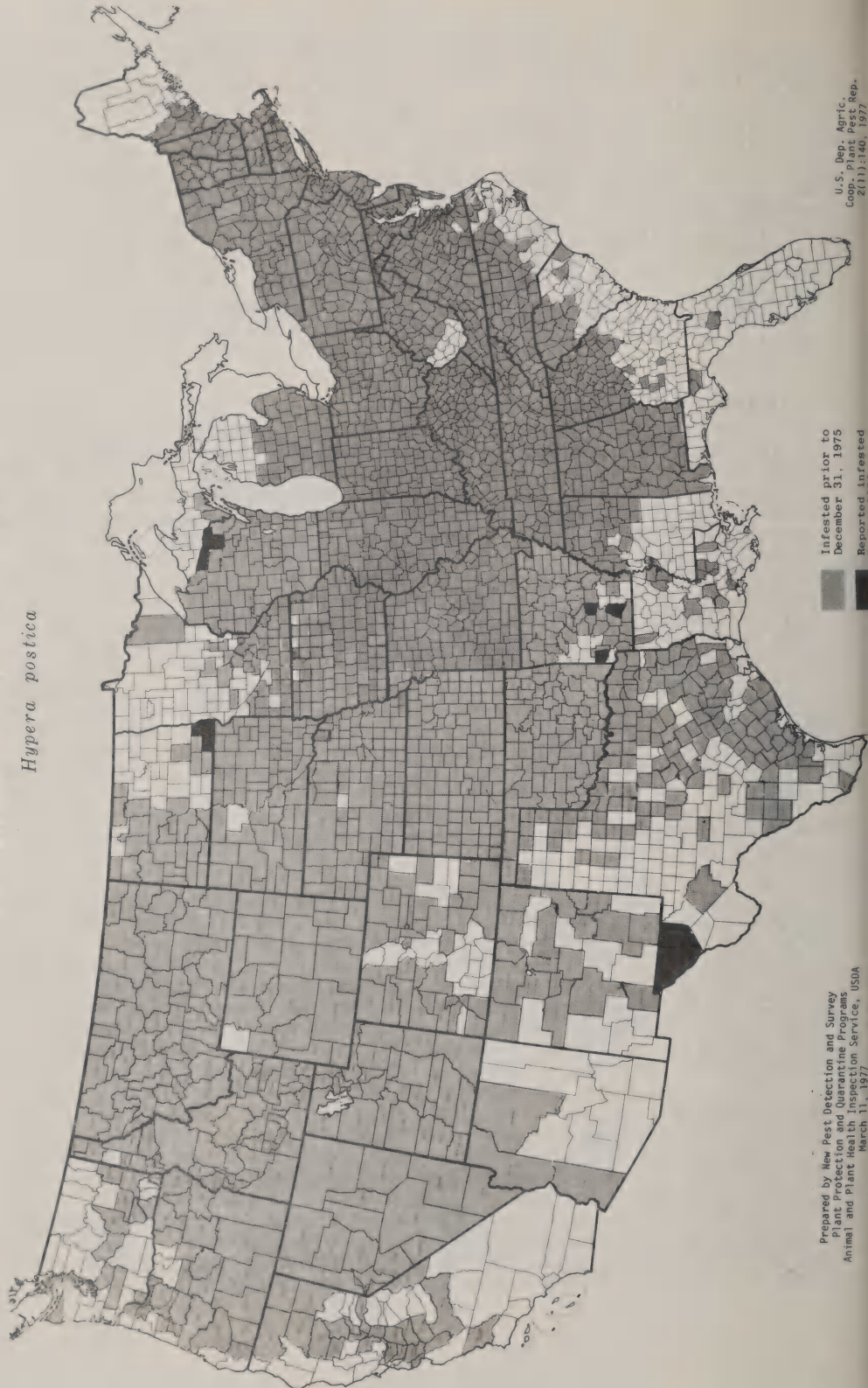
cases were reduced below economic levels by the first cutting in New Mexico. Late summer populations will probably contribute to large 1977 spring populations. The first larval infestations in alfalfa were reported at one per square foot in Hale County, TEXAS, about February 27, 1976. Treatments began 7 days later in Fannin County. Larvae ranged 3-6 per square foot in Pecos County by March 11. Populations in the Panhandle area gradually increased from 0-35 per square foot about April 30 to a peak of 25-75 per square foot the week of May 21. Most areas of the High Plains and Panhandle received treatments. Populations decreased sharply after June 1 everywhere except in the Trans-Pecos area which had light populations. Bathyplectes curculionis (an ichneumonid wasp) was recovered from 3.5 percent of the weevils collected on March 29 in Hale County. New county records for alfalfa weevil were reported on alfalfa at: Acala, Hudspeth County, March 16, 1976, by C.W. Neeb, determined by H.R. Burke; at Lobo Flats, Culberson County, March 17, 1976, collected and determined by C.W. Neeb; and at Clint, El Paso County, June 11, 1976, by C. Burgess, determined by B. Eads and H.R. Burke.

Alfalfa weevil larvae in OKLAHOMA began hatching on alfalfa in early January 1976 in many areas due to mild winter temperatures. Unusually cold weather killing larvae that hatched in January and most of February contributed to somewhat lighter than usual populations in many areas. Heavy larval infestations were present in most areas by early March in the southern half of the State and by mid-April in the Panhandle and northwest counties. Egg laying continued through most of March. In the southern counties, pupation began by mid-March and adult emergence by mid-April. Heavy larval infestations continued into early April in the southern counties, into early May in the west-central counties, and into mid-May in the Panhandle counties. Light larval activity continued through June in some areas. Adult activity in the fall was first noted in mid-November in Payne County. The first seasonal occurrence in ARKANSAS was in mid-February 1976 in the south area and in early March in the north area. Treatments began in early February in the south and in mid-March in the north. Infestations were not as heavy as in some years with the heaviest counts ranging 400-500 per 100 sweeps. Treatment was applied to 70 percent of the acreage. Three new county records were reported. Infestations were lighter in all areas of KANSAS, except in the northwest district, in 1976 than in 1975 and especially in the southwest, west-central, and north-central districts. Unlike 1975, very little acreage needed more than one treatment. The lighter infestations of 1976 follows a trend that began in 1975 and hopefully will continue.

Alfalfa weevil populations in NEBRASKA during 1976 decreased slightly in the southeast, south, and southwest, but greatly increased in the east, central, north, and northeast, where infestations caused a significant amount of damage to first-cutting alfalfa. The first weevil activity was observed in Richardson County April 7; larvae averaged about 4 per 100 sweeps. Populations continued to increase in the southeast area, peaking about May 20 with an average of 1,100 larvae per 100 sweeps in Otoe County. Populations peaked in Greely County about May 26 at about 4,000 larvae per 100 sweeps and in Antelope, Cedar, Dixon, Dakota, and Knox Counties at up to 10,000 larvae per 100 sweeps. In most areas of the State, the majority of the damage was over by June 1 and pupation was well underway. Adults were reported moving from haystacks, causing localized heavy damage to regrowth, in fields in Antelope, Holt, and Knox Counties June 21. Infestations remained a serious problem on alfalfa in southern IOWA in 1976. Eggs ranged 20-74 per square foot in southeastern alfalfa fields during the week ending April 16. First instar larvae were detected in alfalfa tips in Lee and Van Buren Counties. First alfalfa weevil activity began about 21 days earlier than in 1975. Egg laying increased in the southern counties during the week ending April 23, but cool weather reduced development. Moderate damage was reported in alfalfa in southern

Distribution of Alfalfa Weevil

Hypera postica



Prepared by New Pest Detection and Survey
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
March 11, 1977

Infested prior to
December 31, 1975
Reported infested
during 1976

U.S. Dep. Agric.
Commodity Inspection
2(11)-140, 1977

Iowa during the last week in April with 1-3 alfalfa weevil larvae per stem. Although pupae were present during the first week of May, increased damage was noted in southern fields where almost all fields justified chemical treatments. In the western counties, 70-93 percent of the larvae were still in the early instars. By the third week in May, economic damage had progressed to mid-State. Severe damage was caused in Ida county by second and third instar larvae. By the last week of June, adults prevented alfalfa regrowth in Cherokee and Sac Counties. Adult damage was also reported during the first week in July from 6 to 8-inch alfalfa in Crawford County. Economic damage to alfalfa in 1977 is expected in the southern one-half and western one-third of the State or on about 1.5 million acres.

Alfalfa weevil adults averaged 3 per 100 sweeps of forage legumes in McKenzie County, NORTH DAKOTA, by May 14, 1976. By June 25, up to 46 larvae per 100 sweeps infested alfalfa in Williams County. Alfalfa weevil collections that were new county records in 1976 were taken on alfalfa in Richland County (city unknown) by C.G. Scholl, May 20, determined by W.J. Brandvik; and near Straubville, Sargent County, May 27, collected and determined by C.G. Scholl. Infestations were a serious problem on corn in the extreme southern tier of counties in SOUTH DAKOTA in 1976. Up to 150 third and fourth instar larvae per sweep were observed the first week in June in Yankton County. Isolated damage by weevils was reported as far north as Minnehaha County.

Alfalfa weevil first laid eggs in WISCONSIN in 1976 at Arlington, Columbia County, in an outdoor insectary April 2-6. Survival of eggs laid between October 13 and November 11, 1975, was high, and hatching began April 15 and peaked April 20 following warm temperatures. There were two distinct larval hatches: One from fall-laid eggs and one from spring-laid eggs. Adults and larvae were light in late April in the south-central, southwest, and west-central areas. By early May, larvae from fall-laid eggs were present in most alfalfa fields as far north as Green Bay and Door Counties. The hatch of spring-laid eggs began in mid-May in the southern counties where larvae ranged 0-24 per 100 sweeps. Light damage was noticeable in the southeast district in late May and became noticeable in the east-central, south-central, and southwest districts by mid-June. Yield reductions of 50 percent or more in first-cutting alfalfa were observed in Door County and chemical treatment was applied. Heavy larval populations were found in many individual alfalfa fields throughout the State but early harvest of the first cutting reduced high numbers before much damage occurred. Larval populations in alfalfa regrowth never became significant. Infestations were observed in three counties for new county records.

Alfalfa weevil populations in ILLINOIS built up sharply in late February and in March 1976 because of unseasonably warm weather. By the first week in April, terminal feeding was up to 90 percent in occasional Edgar County and Washington County alfalfa fields. Damage was generally heavy enough by the second week in April to require treatment in most fields in the east-southeast, southwest, and southeast districts and a few fields in the central counties. By the third week in April most alfalfa in the southern half of the State needed or had already received treatment. Weevil activity peaked in the last week of April and cool weather slowed development. By the first week in May, activity had subsided in the southern half of the State and egg laying and hatching were virtually completed. Emergence of new spring adults was already underway in the southern third of the State and many larvae in the central areas had pupated. Damaging activity was essentially completed statewide by the end of May. Predator and parasite populations had by this time built up to sufficient levels to limit damage. The estimated dollar loss from alfalfa weevil was approximately \$3 million, including control costs. Benefits from

treatment of 215,000 acres were estimated at \$6.5 million, over and above dollar losses from control costs and damage. Potential alfalfa weevil damage to alfalfa in 1977 is difficult to predict, but damage is expected to be moderate to severe in the southern three-fourths of Illinois and light to moderate in the northern one-fourth.

Alfalfa weevil eggs in INDIANA in 1976 were present at average rates of 80 per square foot of alfalfa in the northern third of the State, 48 in the west-central, 100 in the east-central, and 260 in the southern districts. By February 25, eggs decreased to 120 per square foot in the southwest, as hatching began. By March 12, larvae averaged 2.5 per infested stem in alfalfa that averaged 2.8 inches tall in the southwest district. By March 24, 10 percent of the stems in Harrison County contained spring-laid eggs. By April 2, untreated alfalfa 4.9 inches tall in the same county had 5.6 larvae per infested stem and an average of 1.5 eggs per stem. In Indiana, south of U.S. Highway 50, overwintering eggs survived at rates great enough to produce economically significant larval populations. Because treatments had to be applied so early that they were no longer effective when spring-laid eggs hatched, a second chemical treatment was necessary on the first cutting or on the stubble right after harvest. In the area between U.S. Highway 50 and a line through Indianapolis, a single treatment sufficed and was generally necessary. North of Indianapolis to U.S. Highway 30, damage was evident but not usually economic. North of U.S. Highway 30, one treatment or early harvest was generally necessary to prevent economic damage.

Alfalfa weevil larvae were observed in 4 forage legume fields in TENNESSEE the week of February 2, 1976. Larvae ranged 0-2 per terminal in fields checked with 10 percent of the terminals infested. Larvae ranged from 42 per 50 tips in Davidson County, to 160 per 50 tips in Franklin County the week of March 5. Populations observed that week indicated controls would be needed to produce a good first cutting of hay. By April 1, many fields in the State had been treated and controls were effective when applied. Untreated fields continued to have damaging populations throughout April. Most fields had been cut by May 1 and damage remained light during the remainder of the season. Eggs on forage legumes in Fayette County, KENTUCKY, averaged 13.4, 24.9, and 11.0 per square foot in December 1975 and January and February 1976, respectively. Counts of third or fourth instar larvae in late April corresponded with the control program used: 3 per 30 stems for long-residual insecticide applied in early April and 14-19 per 30 stems for short-residual insecticide. Two treatments of short-residual insecticide kept larval populations light.

Alfalfa damage in the southern and eastern two-thirds of OHIO in 1976 was heavier than in the past 2 years. Larval populations began developing 14 days ahead of normal in the southern area and control sprays were being applied in the extreme southwestern counties by April 13. By the third week of April, economic infestations existed throughout the southern area with feeding damage on 15-100 percent of the stems and populations up to 1,840 larvae per 100 sweeps. In the central and northern areas, populations did not develop as early. Up to 526 larvae per 100 sweeps were present in the central area by the first week of May with damage levels from 10 to 70 percent and application of control sprays underway. Larval populations peaked statewide by the third week of May. Loss was moderate in untreated fields with 15-90 percent damage and up to 1,128 larvae per 100 sweeps in the northeast area. Populations did not reach the very heavy level in the northwest counties as in the south and northeast areas. The maximum larval count in the northwestern district was 540 per 100 sweeps on May 24. Losses were not as great in that area as in 1975.

Alfalfa weevil populations on alfalfa in SOUTH CAROLINA were about normal in 1976. Fields receiving timely insecticide applications had little economic injury. By March 19, 1976, 42 percent of the tips of alfalfa in VIRGINIA was infested, but the estimated defoliation was only 5.4 percent. Weevils were too small to cause serious damage in many fields. By April 2, tip infestation was 50 percent but estimated defoliation was only 7.5 percent. By April 19, 23 percent of the fields needed treatment. By April 23, 58 percent of the tips was infested, and defoliation was 15.4 percent. Weevils caused serious damage in most fields; 45 percent of the fields needed treatment. Serious damage continued through May 7, when tip infestation was 43 percent, defoliation 18.8 percent, and fields needing treatment 50 percent. By May 14, only 17 percent of the tips was infested, and most fields had been treated.

Alfalfa weevil completely defoliated the first cutting in most untreated fields of alfalfa in WEST VIRGINIA in 1976. The second cutting of alfalfa grew slowly. Yields were low due to extensive damage of the first cutting and due to dry weather. Populations on alfalfa in MARYLAND in 1976 were heavier than the above average levels in 1975. The first significant tip injury occurred in the central and western counties the week ending April 2 with 10-30 percent tip injury (8-10 days earlier than normal), and by April 23, tip injury reached 80-100 percent. Damage was heavy statewide with 75 percent of fields receiving controls. Yield losses for the season averaged 12 percent. In untreated Kent County fields, the yield loss ranged 40-50 percent. Larval populations on forage crops increased considerably over 1975 in DELAWARE; some growers applied treatments.

Damage to alfalfa was lighter in PENNSYLVANIA in 1976 than in 1975. Alfalfa weevil larvae peaked (about 20 per sweep) in untreated fields in the south-central area. Farther north, the heaviest larval population occurred in late May at about 3 per sweep. Adults peaked about 14 days after the heaviest larval counts and were about 3 per sweep in the south-central counties and 0.5 per sweep farther north. The first adult activity on forage crops in NEW YORK was reported from Wayne County, April 21, 1976. In May, larval counts were often fewer than one larva per sweep. Field collections of 5 or more larvae per sweep and significant tip damage were rare during 1976. Diseased larvae and pupae infected with Entomophthora phytomyces (a fungus) were collected June 24 in St. Lawrence and Jefferson Counties.

FALL ARMYWORM (Spodoptera frugiperda) infestations were moderate to heavy and widespread on alfalfa in west-central, central, east-central, southwest, and south-central OKLAHOMA from early August to mid-October 1976. Counts up to 100 per square foot were reported in Stephens County and 100 percent defoliation was reported in untreated fields in some areas. Many fields in these areas were treated. Populations damaged alfalfa in Montgomery County, KANSAS, during mid-July 1976 in an area flooded earlier in July. The next brood damaged scattered fields of alfalfa in several counties in the southeast area from mid to late August. Some infestations needing treatment occurred on alfalfa in Kiowa County in mid-September and in Reno County in mid-October. An infestation in mid-September 1976 totally destroyed a 6-acre field of newly seeded alfalfa in Bourbon County, KENTUCKY.

ALFALFA CATERPILLAR (*Colias eurytheme*) populations in NEW MEXICO began increasing during late August 1976 and became a major problem by mid-September, destroying up to 20 percent of the late crop alfalfa in Otero and Quay Counties. Populations ranged 10-25 per square foot of alfalfa in Gregg County, TEXAS, April 9, 1976. Light populations were reported early in the Trans-Pecos area but peaked at 20-50 larvae per 100 sweeps about August 13. Adults were heavy in this area September 17.

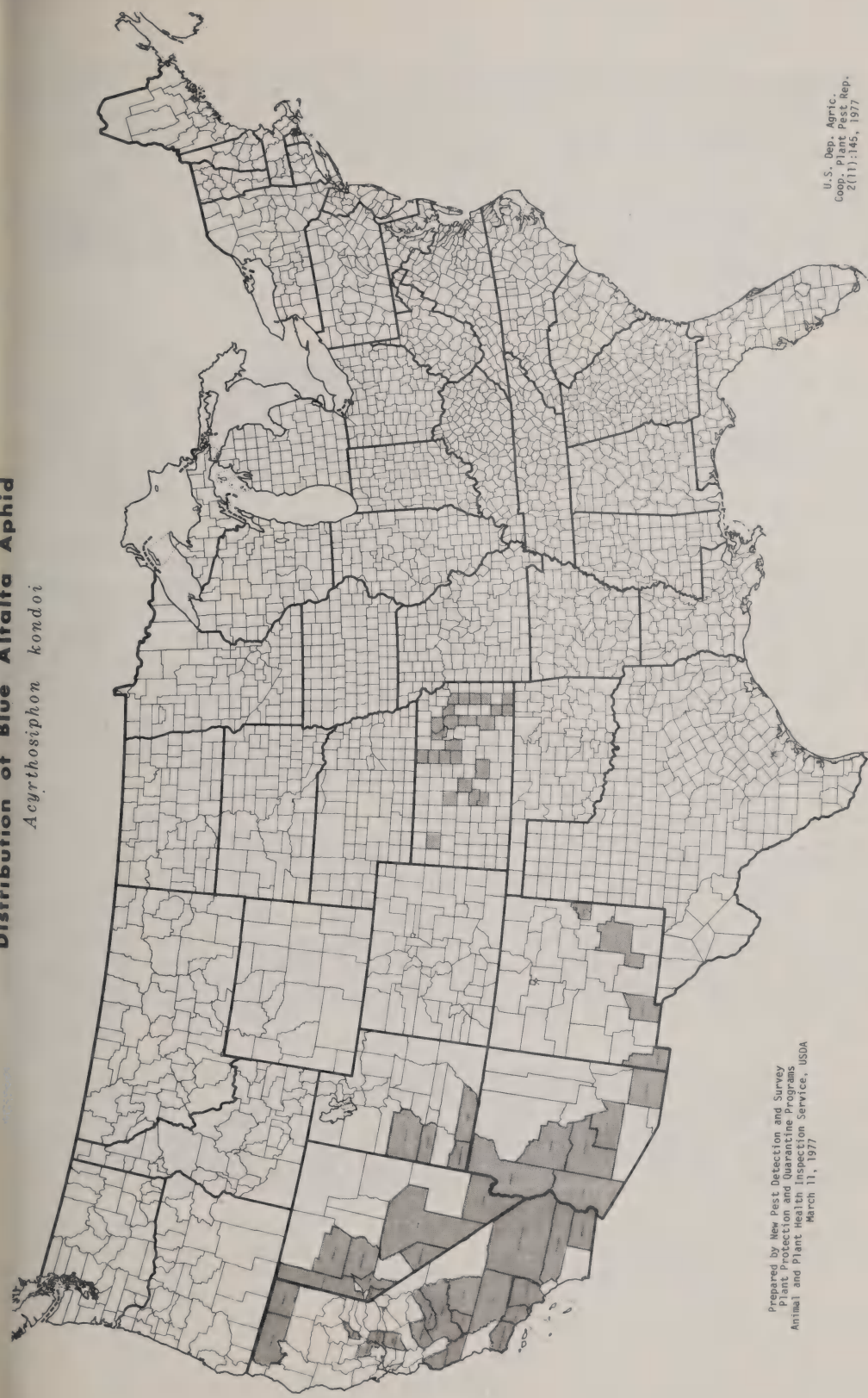
A total of 60 MEADOW SPITTLEBUG (*Philaenus spumarius*) adults was taken in 1,280 sweeps of an alfalfa field near Mead, Saunders County, NEBRASKA, July 27, 1976. Adults were collected by G.R. Manglitz, H. Stevens, R. Ronnenkamp, and L. Klostermeyer, and determined by J.P. Kramer. This is a new State record. Infestations in IOWA were heavier in 1976 than in 1975. Nymphs ranged 0.5-0.8 per stem on alfalfa in Ringgold County during the last week of May. During the first week of June, counts averaged more than one per stem on alfalfa in Allamakee and Cass Counties. No significant damage was observed. Nymphal froth masses were first noted on alfalfa and clover about the second week in April 1976, in Jasper County, ILLINOIS. Damage was light through the growing season. The fall adult survey revealed the heaviest populations in the northwest (25 per 100 sweeps), northeast (20 per 100 sweeps), and west (40 per 100 sweeps) districts. These districts have the greatest potential for damage in 1977, although little damage is predicted.

LYGUS BUGS (*Lygus* spp.) nymphs and adults were present in Humboldt, Lander, and Pershing Counties, NEVADA, seed forage fields by mid-May 1976 but were reduced by prebloom treatments and did not require extensive control measures until July when the majority of the sprays was applied. Control results with the currently recommended material were unsatisfactory in many cases. About 42,000 acres were treated in Humboldt, Lander, and Pershing Counties. This is a reduction of almost 2,500 acres below the 1975 treated acreage, but approximately 7,000 fewer acres were grown for seed in 1976 as compared to 1975.

BLUE ALFALFA APHID (*Acyrtosiphon kondoi*) infestations were heavy on alfalfa in San Bernardino, Riverside, Kern, and Kings Counties, CALIFORNIA, in 1976. This species has generally displaced PEA APHID (*A. pisum*) throughout the central and southern area. Heavy, damaging populations of blue alfalfa aphid developed on hay and/or seed alfalfa in Churchill, Clark, Douglas, Esmeralda, Lyon, Nye, Pershing, and Washoe Counties, NEVADA, in 1976. Economic infestations occurred in the southern counties from late March through May and in 2 areas of Clark County again in late November. In the north-central and western counties, infestations generally occurred from mid-May through July although some severe infestations were also present in Churchill County in late April and populations also increased in Washoe County in September. Many fields averaged 300-500 per sweep and counts of up to 2,000+ per sweep were present in Lyon County where unusually heavy infestations occurred throughout July. Severely stunted, yellowed, and deformed plants were present in heavy infestations and in most severe ones, the top foliage of established plants was killed. Almost two-thirds, over 48,500 acres, of the alfalfa acreage treated for aphids were treated for this pest or this pest in conjunction with *A. pisum* in the above 8 counties.

Blue alfalfa aphid infestations in forage legumes spread to Kane, Beaver, and Millard Counties of UTAH in 1976. It was generally more damaging there and in Washington County than *A. pisum* during April in Washington County and during

Distribution of Blue Alfalfa Aphid *Acyrtosiphon kondoi*



Prepared by New Pest Detection and Survey
 Plant Protection and Quarantine Programs
 Animal and Plant Health Inspection Service, USDA
 March 11, 1977

U.S. Dep. Agric.
 Coop. Plant Pest Rep.
 2(11):145, 1977

May and June in the newly infested counties. Blue alfalfa aphids were collected in Dona Ana County, NEW MEXICO, April 13, 1976, for a new State record. Earlier collections made in Virden area, Hidalgo County, were also positively identified. Collections were made at Roswell, Chaves County, during May and June. No further damage was observed through 1976. Specimens were collected for the first time in KANSAS, June 6, 1976, in Riley County on alfalfa. It was subsequently found in 23 other counties (total 24) representing all except the west-central and southwest crop reporting districts. Although potentially capable of causing more damage to alfalfa than the pea aphid, no infestations considered damaging were detected in the State. A previously unreported new county record was established on alfalfa at St. George, Pottawatomie County, May 13, 1976. Specimens were collected and determined by K.O. Bell.

PEA APHID (Acyrtosiphon pisum) population trends and infestation levels in NEVADA in 1976 generally followed those of BLUE ALFALFA APHID (Acyrtosiphon kondoi). In the 8 counties where both species were present, pea aphid usually was less prevalent and constituted a smaller percentage of the populations except in Pershing County where it consisted of 60 percent or more of the total. Treatments for pea aphid were applied to hay and/or seed alfalfa in Humboldt, Lander, and White Pine Counties. Pea aphid infestations in UTAH were a moderate to occasional problem in the spring of 1976, but during late summer it increased to heavy injurious populations in part of Beaver, Millard, Juab, Uintah, and some areas along the "Wasatch front," Payson to Cache and Box Elder Counties. Populations in IDAHO during 1976 were light on untreated forage. In seed areas, the heaviest populations ever reported were observed; repeated treatments gave only partial control. Infestations were light to moderate on alfalfa throughout the 1976 season in the Trans-Pecos area of TEXAS. Infestations in alfalfa were reported from late February to mid-October 1976 in OKLAHOMA. Heavy infestations were reported mostly from the southwestern quarter of the State from late February to late March.

Pea aphid infestations first appeared the last week of May 1976 in MINNESOTA, increased to 200-400 per 100 sweeps by the first week of July, and reached 2,000-6,000 per 100 sweeps in some alfalfa fields 14 days later. Most of the State had at least 2 cuttings of alfalfa and damage from aphids was not significant. Hatch began on Dane County, WISCONSIN, alfalfa in late March 1976, but populations did not exceed 6 per 100 sweeps by mid-April in the south-central and west-central counties. At that time, about 20 percent was parasitized or diseased. The first nymphs were observed on alfalfa in the southern one-half of the State in late April. By late June, populations in alfalfa increased and averages of 10 per sweep were common. Variable aphid populations persisted in alfalfa until killing frosts. Populations were present on alfalfa in ILLINOIS by mid-March 1976 at levels of 150-400 per sweep. By July 1, counts had increased to 200-400 per sweep in occasional fields. Populations were present through the growing season but failed to cause significant damage.

ALFALFA BLOTCH LEAFMINER (Agromyza frontella) adults became active in late April 1976 and went through 3 generations in central PENNSYLVANIA. In these regions, the second generation in July was the only one to damage alfalfa crops with up to 50 percent of the leaves containing mines and 15 adults per sweep. Pinholes and egg punctures were easily found in NEW YORK in late May 1976 on forage crops. By mid-June, heavy reports of activity were reported in

central, northern, and eastern New York. Alfalfa blotch leafminer was widespread and heavy in Oneida and Otsego Counties by late July. Populations and damage in MAINE in 1976 were lighter than in the past 2 years. There were a few cases where 20 percent of alfalfa leaves was infested. Good haying conditions allowed alfalfa to be cut early or on schedule.

BROWN WHEAT MITE (*Petrobia latens*), up to 300 per sweep, caused moderate to heavy damage to hay alfalfa in scattered areas of some fields in Churchill County, NEVADA, in late April and early May 1976. Irrigation provided effective control in most instances but about 300 acres needed chemical controls.

SOYBEANS

Highlights

SOYBEAN CYST NEMATODE extended its distribution in Illinois and Tennessee. FALL ARMYWORM damaged soybeans in Oklahoma and Arkansas. MEXICAN BEAN BEETLE was an important pest in northeast Alabama. SEEDCORN MAGGOT increased in Iowa, some replanting was needed. About \$3.5 million loss was caused by TWOSPOTTED SPIDER MITE in Illinois. A rare WIREWORM occurrence resulted in some replanting in North Carolina.

DISEASES

SOYBEAN CYST NEMATODE (*Heterodera glycines*) infestations were found in Crawford and Vermilion Counties, ILLINOIS, in late July 1976, for new county records. The Vermilion County infestation is presently the farthest north in the State. Infested soybean fields were noted in Davidson County, TENNESSEE, for a new county record in 1976. A previously unreported new county record was established when infestations were taken on soybeans at Hartsville, Trousdale County, September 21, 1976, by S.D. Gregory. Determination was made by R.E. Harrison. By mid-September, heavy populations were observed in many fields of the western area with 50-60 percent of the plants showing damage in some fields.

INSECTS

FALL ARMYWORM (*Spodoptera frugiperda*) damaged soybeans in the northeast, east-central, and southeast counties of OKLAHOMA from mid-July to early September 1976. Defoliation ranged 10-15 percent in some fields. Many of the heavier infestations were caused by larvae migrating from nearby alfalfa fields. This species was the main pest of soybeans in ARKANSAS in 1976 due to heavy populations overall and CORN EARWORM (*Heliothis zea*), generally the main pest of soybeans, being light for the fourth consecutive year. Infestations in 1976 were mainly along field borders adjacent to more favorable hosts. Fall armyworm and YELLOWSTRIPED ARMYWORM (*S. ornithogalli*) infested 3,243 acres of soybeans in TENNESSEE: 3,076 acres were treated.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) infestations caused up to 40 percent defoliation in soybean fields in southeast ARKANSAS in late September 1976. Due to the lateness of the infestations and maturity of the crops, no treatments were applied. This species is generally of minor importance in the State and sporadic infestations occur only in late season. This species was the main pest of soybeans in FLORIDA and was somewhat heavier in 1976 than in 1975.

Overwintered MEXICAN BEAN BEETLE (*Epilachna varivestis*) entered soybean fields in Calhoun, Madison, Cherokee, Jackson, Marshall, and other counties of ALABAMA, as early as June 1976 and became an important pest in many fields in the northeast area. Isolated soybean fields in SOUTH CAROLINA in 1976 were infested

heavily enough to need controls. By August 13, 1976, the second generation of beetles was laying eggs on soybeans in Richmond, Essex, King and Queen, and Hanover Counties in VIRGINIA. By August 27, Westmoreland County (597 acres) infestations averaged 11.8 beetles per 30 row feet with 6.4 percent defoliation. By September 3, defoliation in Northumberland County was 24.5 percent. Damage in Isle of Wight, Surry, and Middlesex Counties was lighter than usual. By September 10, fields in Lancaster County showed an average of 26 beetles per 30 row feet with 7.8 percent defoliation. An estimated 8,000 acres were treated in Virginia Beach. By September 17, the number of Mexican bean beetles had decreased due to extensive treating for CORN EARWORM (*Heliothis zea*). None of the 51 fields sampled in the Northern Neck of Virginia needed treatment the week ending October 1.

Early Mexican bean beetle populations on soybeans in MARYLAND were very light due to cool spring temperatures in 1976 and due to decreases in overwintering beetles caused by *Pediobius foveolatus* (a eulophid wasp). Dry weather in some areas in June and July caused further decreases in population levels, but by late season populations were near normal levels statewide. Much of the crop was then mature, limiting the statewide yield loss to approximately 2 percent, with 60,000 of 285,000 acres receiving one insecticide treatment. A substantial portion of this figure, however, was for scheduled preventive sprays. Populations were generally light in most areas of DELAWARE in 1976. The economic threshold was exceeded in one area of Kent and southern New Castle Counties during mid-September.

SEEDCORN MAGGOT (*Hylemya platura*) infestations in IOWA were first reported damaging soybeans in Union, Scott, and Keokuk Counties during the week ending May 28, 1976. Damage increased statewide during the first week of June. Some replanting of soybeans was needed. Damage continued through the second week of June in Cerro Gordo, Fayette, Jasper, and Marshall Counties. Damage to soybeans by seedcorn maggots increased from 1975. It was considered a major pest.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) damaged soybeans, mainly at the edges of the fields, in some dry areas of ILLINOIS June through August 1976. Infestations caused yellowing, stunting, and leaf drop in severe cases. The estimated dollar loss was approximately \$3.5 million from feeding damage alone. Benefits from treatment of 125,000 acres amounted to about \$6.5 million. Heavy populations were apparent in some soybean fields and garden vegetables in WISCONSIN by August 20, 1976. Populations were heaviest in soybean fields in the Central Sands. Up to 800 per leaflet were noted in some fields in the central and southern counties. Damage was compounded by the drought; severe leaf drop occurred in unirrigated portions of fields in the Central Sands.

WIREWORMS (*Conoderus* sp.) caused severe damage to germinating soybeans June 16, 1976, in Beaufort County, NORTH CAROLINA. This very rare occurrence resulted in replanting of about 5 acres.

PEANUTS

Highlights

LESSER CORNSTALK BORER was economic only in 15-20 percent of the peanut acreage in ALABAMA, the main insect on peanuts in FLORIDA, and a major economic problem in parts of South Carolina. SOUTHERN CORN ROOTWORM was spotty and slightly heavier than in 1975 in Virginia. TOBACCO THRIPS was heavier than in several years in Virginia. TWOSPOTTED SPIDER MITE caused much economic loss to peanuts in south-central Virginia.

INSECTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were reported in peanuts from early July to early October 1976 in OKLAHOMA. Except for a few isolated spots, populations were light until early September. The first adult and larvae were reported June 6, 1976, in Dale County, ALABAMA. Developing populations became economic in only 15-20 percent of the peanut acreage in August. Control efforts were applied on 25-40 percent of the 210,000 acres in 9 counties for E. lignosellus, GRANULATE CUTWORM (Feltia subterranea), CORN EARWORM (Heliothis zea), and VELVETBEAN CATERPILLAR (Anticarsia gemmatilis). E. lignosellus was the main insect pest of peanuts in FLORIDA in 1976, causing \$676,500 damage, about two-fifths of all insect damage. Infestations were a major economic problem in as many as 25 percent of the peanut fields in SOUTH CAROLINA during the dry weather of July and August. Recommended controls were effective when used.

FALL ARMYWORM (Spodoptera frugiperda) was the second most important pest of peanuts in FLORIDA in 1976, causing about \$440,000 in losses.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) infestations in peanuts in VIRGINIA were spotty and slightly heavier in 1976 than in 1975, but damage was not excessive. In 8 untreated checks, 20.9 percent of the pods were damaged. Damage ranged up to 43 percent in some untreated plots.

Unspecified THRIPS (Frankliniella spp.) were heavy, 10-60 per peanut plant, in some areas of OKLAHOMA in June 1976; some leaf curling was noted. The usual precautionary applications of preplant systemic insecticides were applied to 55 percent of the total peanut acreage for TOBACCO THRIPS (Frankliniella fusca) and other thrips in ALABAMA. Much of the remaining acreage received foliar applications as an aid in control efforts. Tobacco thrips on peanuts in VIRGINIA was heavier in 1976 than in several years. Systematic insecticides failed to give good control probably due to dry weather.

SPIDER MITES (Tetranychus spp.) infestations were moderate to heavy in peanuts in Caddo and Washita Counties, OKLAHOMA, from late August to early October 1976. TWOSPOTTED SPIDER MITE (Tetranychus urticae) populations on peanuts in southeastern VIRGINIA during 1976 were widespread, severe, and caused much economic loss. On 4 untreated plots, mites averaged 371.6 per 10 leaves.

COTTON

Highlights

Heavy BOLL WEEVIL infestations were noted in Texas and Oklahoma from June until fall. Treatments in Arkansas were the lightest in 25+ years. Counts in Alabama were the lightest in 10 years. Control costs in North Carolina were about half of that in 1975. BOLLWORMS were generally light to moderate in California, light in Texas, and lighter than normal in Arkansas. Bollworm was a major pest in Tennessee in August and September. Control costs in North Carolina increased about \$3 million. Two to three treatments were required for THRIPS in Arkansas and Mississippi.

INSECTS

BOLL WEEVIL (*Anthonomus grandis*) adults in trap collections were light in February and March 1976 in the lower Rio Grande Valley of TEXAS. Infestations were 5 per 100 row feet in one cotton field near Weslaco, Hidalgo County, March 29. Populations remained light in the gulf coast and lower Valley areas until about May 7 when trap catches and field counts increased sharply in these areas, the Blacklands, and the south-central area. Weevils totaled 214 in one pheromone trap in Knox County May 11. Up to 80 percent punctured squares occurred by June 4 in the lower Rio Grande Valley, but the north-central and Rolling Plains reported several trap catches of 100+ weevils per week with one in Delta County catching 800. On July 2, damage had decreased to a maximum of 50 percent punctured squares in the lower Rio Grande Valley. Egg laying had started in the south-central area and pheromone traps were still producing in the Rolling Plains. Light populations were trapped in July and later in the season in the St. Lawrence area. Punctured squares ranged 0-50 percent in all infested areas in early July, but increased to 100 percent in the lower Valley and 70 percent in the Blacklands 14 days later. Heavy but variable pressure continued until harvest or frost in all areas, with populations reaching 8,000 per acre in many fields in the Rolling Plains on September 3.

Boll weevil adults were taken in pheromone traps in Jackson and Greer Counties, OKLAHOMA, as early as May 10, 1976. Trap catches averaging 175 per week were taken in some areas in the southwest and west-central counties during early June. Punctured cotton squares were first found in early July and heavy infestations were reported in some isolated spots during July. In August and early September, heavy infestations (35-100 percent) were common in untreated cotton in all southwest and west-central counties. Heavy adult populations were still present into early October indicating a heavy overwintering population. Infestations in cotton were lighter than normal in ARKANSAS during 1976 and treatments for control were the lightest in more than 25 years. Pheromone trapping was widespread. The peak catch was 1.2 weevils per trap the week ending June 25. Weevils were taken as late as June 28 in Clay County. Populations for the 1976 cotton season in MISSISSIPPI were relatively light compared with the 1975 season. Emerging weevils collected from April 9 to June 1, averaged 19 per sex-lure trap in Oktibbeha and Clay Counties. The first damaged squares were reported June 25 in Monroe County. During the week ending July 29, punctured squares ranged 1-10 percent in Franklin, Monroe, Montgomery, Yalobusha, Holmes, Lowndes, Carroll, Adams, Alcorn, and Noxubee Counties. During the usual peak period for weevils in August, punctured squares ranged 1-20 percent. "Hotspots" had 55 percent punctured squares but were limited. Controls were successful.

Boll weevil adults were active in ALABAMA throughout 1976 and were trapped in Barbour County from January through March. The first weevils of the season collected on cotton occurred the second week of May in Macon County. The first collection in the northern area was in Colbert County during the second week of May in sex-lure traps. The first "hatchout" of weevils in June in the southern area and in early July in the northern area was light and late. Succeeding generations were light and easily controlled. Weevils throughout the State were much lighter than in 10 years and controls were more successful. Overwintered adults in several west TENNESSEE counties were well below populations in 1975 for all, or part, of April, May, and June. Due to late-maturing cotton throughout the State, the first square counts were made the week ending June 23 when punctured squares ranged 0-9 percent in the central area and 4-65 percent in the west area. These counts were not considered representative due to the scarcity of squares. First-generation "hatchout" was observed during the week ending August 13, and square counts ranged 0-20 (averaged 10-12) percent. Second generation weevils emerged during the week ending August 27, and punctured

squares ranged 4-46 percent. Third generation weevils emerged during the week ending September 3, and punctured squares ranged up to 94 percent. Second and third generation populations overlapped during this period. Emergence was 14-21 days later in 1976 than in 1975 on cotton throughout SOUTH CAROLINA. Populations appeared to be much lighter. Populations remained light throughout the season and good control was obtained. Damage was light in NORTH CAROLINA during 1976 with some "hotspots" in Scotland, Northampton, and Halifax Counties. Damaged cotton squares averaged below 10 percent with some fields nearing 20 percent during early August. Estimated losses plus cost of control continued to decrease although acreage increased 13,000 acres from 1975. Estimated loss plus control cost on 68,000 acres of harvested cotton in 1976 was \$1.6 million compared with \$3 million on 55,000 acres in 1975.

BOLLWORM (Heliothis zea) was generally light to moderate on cotton in Imperial and Riverside Counties, CALIFORNIA, in 1976. TOBACCO BUDWORM (H. virescens) increased in significance in the Imperial Valley with heavy damage; long term impact is unknown. In TEXAS, H. zea and H. virescens peaked early, the week of April 9, 1976, in the lower Rio Grande Valley of Texas with 203 larvae per 100 plants and isolated fields had up to 90 percent terminal loss. Populations remained widespread but light throughout the State the remainder of the year. Less than 5 percent damage occurred through the remainder of the season except in unusual fields. A peak in September in the High Plains caused some concern but little damage. H. zea eggs were first found in cotton in southwestern OKLAHOMA the last of June 1976. Infestations in the southwest and west-central counties were mostly light to moderate all season, seldom averaging more than 15 eggs or larvae per 100 terminals. Very few H. virescens infestations were reported, but from late July to early September some infested fields were found in Caddo and Grady Counties. H. zea and H. virescens infestations were lighter than normal in ARKANSAS in 1976. Treatments for control were later than normal and not needed in many fields. H. virescens continued a major problem, mainly in the southern area, largely due to difficulty in control. H. virescens constituted only a small percent of the Heliothis spp. taken in traps. H. virescens larvae made up a large percentage of the larvae identified in the fields in the southern area in September and October, due to insecticide selection caused by resistance.

Heliothis spp. infestations throughout MISSISSIPPI were less of a problem in 1976 than in 1975. First generation eggs were light on June 15 with first generation larvae controlled by beneficial insects. Some problems were noted during the last week of July in the south Delta counties, but controls were effective. Heavy egg laying occurred statewide during mid and late August. Larvae were adequately controlled. H. virescens and H. zea became pests of cotton in ALABAMA throughout the 1976 season following an earlier increase of 2+ generations on clovers, vetch, and corn. Larvae were less damaging than in the past 10 years. H. zea was below control levels in TENNESSEE until mid-August 1976 when all stages were found and populations were above control levels in many cotton fields. By the end of August this species had become the main pest of cotton in many fields. Egg and larval populations continued above control levels with damage apparent in many fields into late September. Light to moderate numbers of H. zea and H. virescens eggs and larvae were noted throughout the middle of SOUTH CAROLINA from the last week of July 1976 to the first week in August. Similar infestations began in the upper counties of the State 10-14 days later. These infestations were about 21-28 days later than in 1975 and field populations were much lighter. The majority of growers obtained good control of this pest complex. The proportion of tobacco budworm in the bollworm complex has increased from 15 percent and 21 percent in 1969 and 1970 to 79 percent, 75 percent, and 41 percent in 1974, 1975, and 1976, respectively.

H. zea and H. virescens egg laying was very heavy in the northern Coastal Plain cotton fields of NORTH CAROLINA in 1976. Eggs were noted at 100 per 100 terminals in Edgecombe, Halifax, and Northampton Counties August 13, 1976. The threshold (5 percent damaged squares) was noted in 20 percent of the fields in Edgecombe and Northampton Counties during late August. "Hotspots" of 20 percent infested bolls were reported from about 5 percent of the fields in Northampton County. Controls were adequate. The estimated loss plus cost of control on cotton totaled \$4.6 million on 68,000 acres in 1976 compared with \$1.2 million on 55,000 acres during 1975.

COTTON APHID (Aphis gossypii) infestations on cotton in ARKANSAS were more common in 1976 than for the past several years. Increased infestations and less effective control than in the past indicate possible insecticide resistance.

BANDEDWING WHITEFLY (Trialeurodes abutilonea) infestations continued to be heavier and more widespread on cotton in ARKANSAS during 1976 as in past years. Control is seldom satisfactory and the somewhat effective materials are limited in number.

LYGUS BUGS (Lygus spp.) infestations were widespread in cotton throughout CALIFORNIA in 1976. Light to heavy infestations occurred, but generally were below normal in Palo Verde Valley and at Blythe, Riverside County.

TARNISHED PLANT BUG (Lygus lineolaris) infestations averaged 15 percent in squaring cotton in Sunflower and Monroe Counties, MISSISSIPPI, in 1976. During the last week of July, infestations increased to 50 percent in many areas where scheduled insecticide applications were absent. L. lineolaris and COTTON FLEAHOPPER (Pseudatomoscelis seriatus) were above average, especially in the Delta area.

Infestations by unspecified THRIPS species in ARKANSAS were heavier than normal in 1976 partly due to increased wheat acreage in the cotton areas. Thrips treatments were the heaviest and most widespread of all time. Treatments were applied up to 3 times in some fields. Increased treatments resulted from several factors, such as greater thrips numbers, cool weather, and herbicide damage. Frankliniella spp. and Thrips spp. were an exceptional problem during the 1976 cotton season in MISSISSIPPI compared with 1975. An average of two treatments was applied for thrips on cotton statewide. The problem was attributed to a cool, wet spring which delayed growth of seedling cotton. Populations ranged 0.2-5.0 per plant in Delta and Hill section cotton during early June.

LIGHT TRAP COLLECTIONS

CALIFORNIA - Bellota, 2/28-3/4, BL - BEET ARMYWORM (Spodoptera exigua) 1, VARIEGATED CUTWORM (Peridroma saucia) 2. Stockton, 2/28-3/4, BL - Variegated cutworm 2. FLORIDA - Gainesville, 3/3-9, BL - ARMYWORM (Pseudaletia unipuncta) 2, BLACK CUTWORM (Agrotis ipsilon) 1, GRANULATE CUTWORM (Feltia subterranea) 11.

Distribution and Identification of Blue Alfalfa Aphid
Acyrtosiphon kondoi Shinji (Homoptera: Aphididae)

Tokuwo Kono^{1/}

Since its discovery in California in May 1974, blue alfalfa aphid, Acyrtosiphon kondoi Shinji, has been found to be generally distributed in California. It is now known to occur in the following counties: Fresno, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Modoc, Monterey, Riverside, Sacramento, San Bernardino, San Joaquin, Santa Barbara, Siskiyou, Tulare, Ventura, Yolo, and Yuba. Blue alfalfa aphid is known, also, to be established in Arizona, Kansas, Nevada, New Mexico, and Utah.

A very useful character for field identification is body coloration, which is bluish green for blue alfalfa aphid and yellowish green or light green for pea aphid, Acyrtosiphon pisum (Harris). Other diagnostic characters for field identification are the coloration of the third antennal segment of nymphs and adults, and the coloration of the thoracic area of the winged forms. The third antennal segment of pea aphid shows a narrow dark band at the tip, whereas that of blue alfalfa aphid is uniformly brown. The color of the thoracic area of the winged form is dark blackish brown for blue alfalfa aphid and light brown for pea aphid.

Microscopic examination of the head shows that the head of pea aphid is larger and the hairs on the head are shorter than that of blue alfalfa aphid (Fig. 1-4).

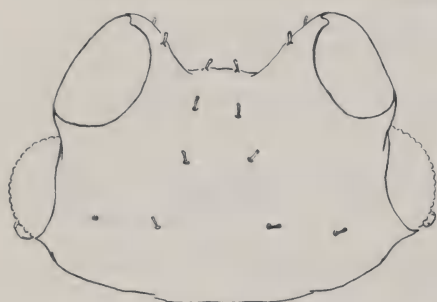
Comparison of parts of the body of the winged forms (Fig. 5-12) and the wingless forms (Fig. 13-20) of pea aphid and blue alfalfa aphid shows that, in general, the body parts of pea aphid are longer than those of blue alfalfa aphid. The cauda of both winged and wingless forms of pea aphid have more hairs and have shorter hairs at the tip than that of blue alfalfa aphid. Finally, the base of antennal segment 6 is over twice as long as the last rostral segment for pea aphid and only a little longer for blue alfalfa aphid.

These are only some of the characters that can be used, most of the time, for the identification of blue alfalfa aphid. There are many exceptions, for the genus Acyrtosiphon is composed of many closely related, highly variable species.

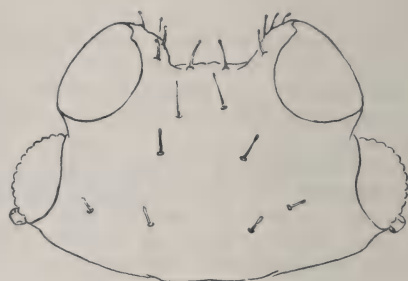
^{1/} Division of Plant Industry, Laboratory Services-Entomology, California Department of Food and Agriculture, Sacramento, California 95814

Reference

Eastop, V.F. 1971. Key for the identification of Acyrtosiphon (Hemiptera: Aphididae). Bull. British Mus. (Nat. Hist.) Entomol. 26(1):1-115



1



2



3



4

Fig. 1-4. Head of adults. 1, pea aphid, wingless; 2, blue alfalfa aphid, wingless; 3, pea aphid, winged; 4, blue alfalfa aphid, winged.

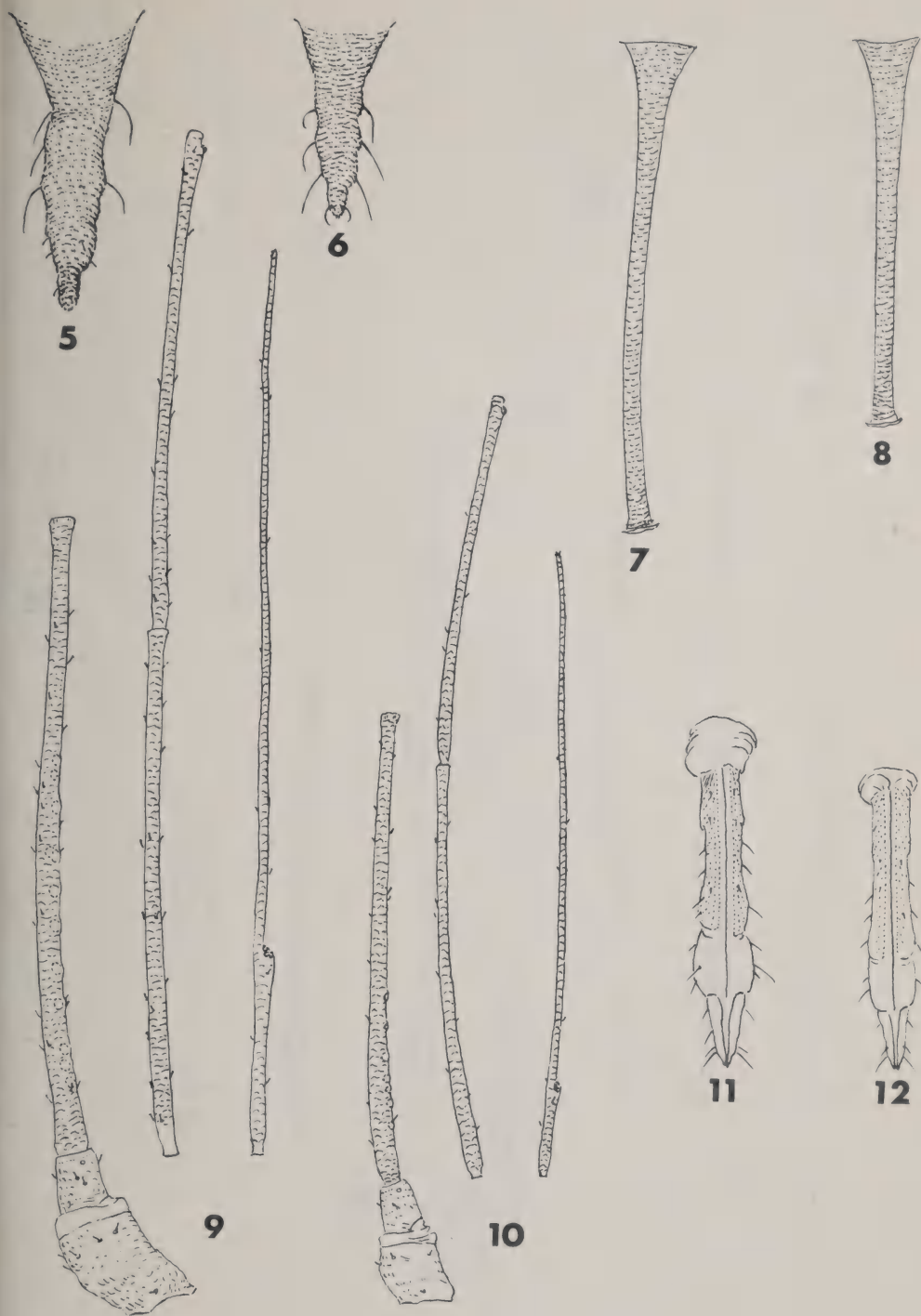


Fig. 5-12. Body parts of winged adults (left, pea aphid; right, blue alfalfa aphid). 5-6, cauda; 7-8, cornicle; 9-10, antenna; 11-12, rostrum.

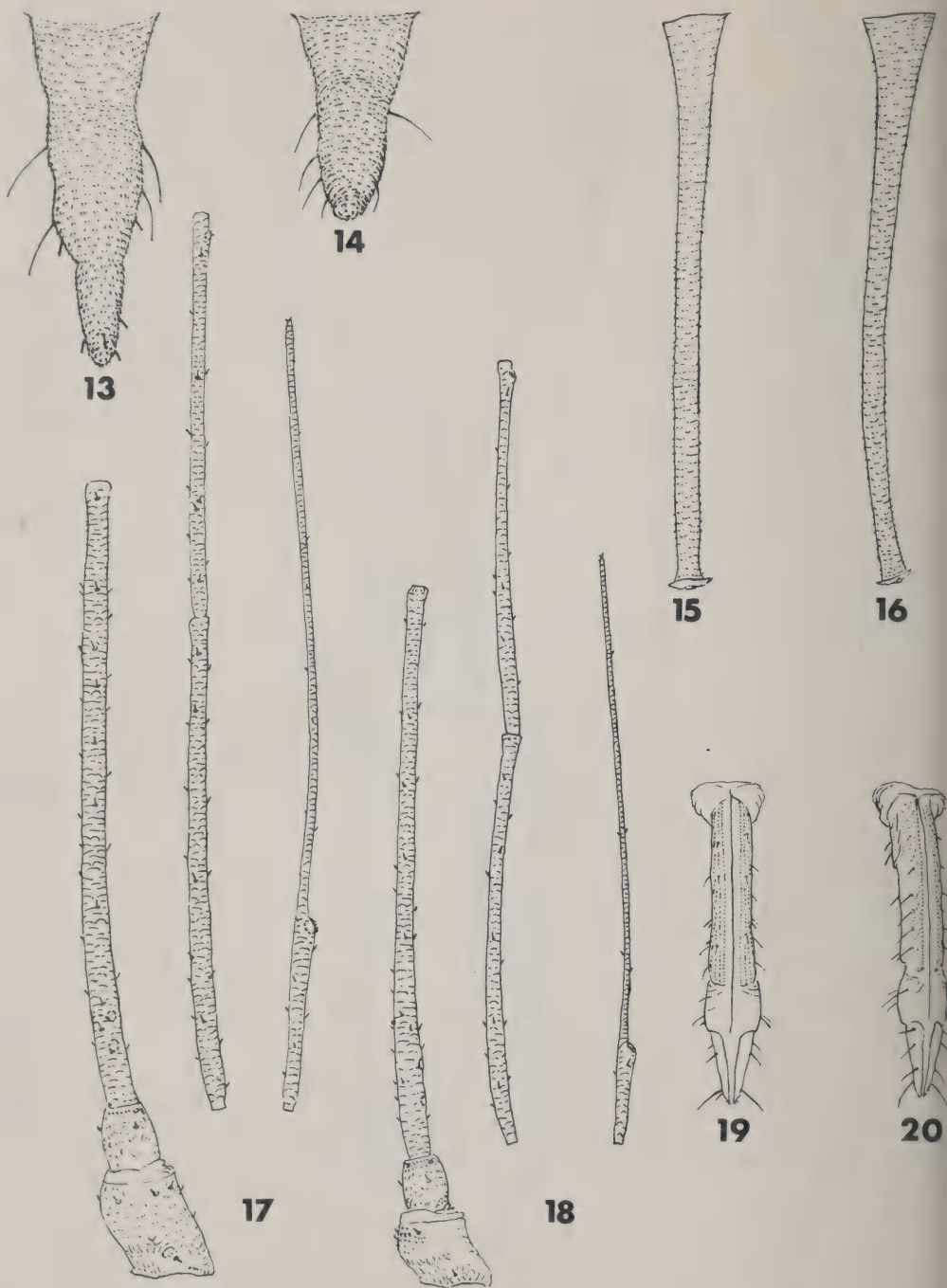


Fig. 13-20. Body parts of wingless adults (left, pea aphid; right, blue alfalfa aphid). 13-14, cauda; 15-16, cornicle; 17-18, antenna; 19-20, rostrum.

U.S. Dep. Agric., Coop. Plant Pest Rep., 2(11):153-156, 1977



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